SEWAGE DISPOSAL FOR ISOLATED HOUSES. — II.

THE article on this subject published on page 219 may properly be supplemented with specific information as to certain details of the work.

This system may be made to operate almost equally well in soils of very different character, very heavy clay and pure peat being the least favorable and light sandy or gravelly loam being the best. The quality of the soil, aside from its purifying efficiency, has much to do with the length of absorption drain required. In a light soil the sewage runs freely out of the pipes, making way quickly for the flow that is to follow. In very porous sand or gravel, even in the case of a small system where the time occupied in the delivery of the contents of a flush-tank to the extreme ends of the drains is very short, probably a length of drain of fifty feet would take care of one hundred gallons of sewage before a sufficient head would be brought to bear upon it to force it to the surface of the ground — which, of course, is to be avoided. In a very stiff clay, on the other hand, where the sewage would escape through the joints very slowly, it might be prudent in small systems to use a length of three hundred feet or more for the same amount. In what may be called *average* soils, in the construction of small works for single families, an allowance of two hundred feet for one hundred gallons seems to answer very well. It is always well to bring a little "head" to bear on the contents of the pipes to ensure their being filled at every point. In very stiff clays it is well to fill the trench from the bottom of the gutters to above the tops of the caps with sand or gravel to hasten the discharge.

Perfect drainage of the soil is most indispensable, and if the land is not naturally dry it must be thoroughly underdrained. Where underdraining is necessary, the perfect settling of the filling over the underdrains must be secured by the equivalent of at least two or three drenching rains before it is safe to lay the absorption tiles across the lines of the trenches.

It has been a matter of surprise to all who have had experience with this system that the most severe frost seems to have no effect upon its working. In my own grounds, where the absorption drains were five feet apart, the ground between them has been frozen to a depth of three and one-half feet, yet the warmth of the sewage was always sufficient to secure its entrance into the soil.

One of the most frequent questions asked in connection with this system is "What becomes of the sewage?" All porous substances seem to possess the power of extracting impurities from water which passes through them. The upper layers of the soil possess this power in a peculiar degree. When a flood of sewage escapes from the joints of absorption drains it is soon deprived of its burden of organic matter, and settles away into the ground in a purified condition. The organic matter thus retained by the soil — and which, if delivered into its lower strata beyond the reach of air and of vegetation, would accumulate and render the earth foul — is, when deposited near the surface, rapidly oxidized, and in the growing season taken up by the roots of plants. Therefore, when sewage is delivered into a network of absorption drains by the intermittent discharge of a flush-tank it escapes through the joints into the ground; its water settles away leaving its impurities attached to the surfaces of the particles of the soil. Those impurities are probably all destroyed during the interval between two discharges. Certain it is that the soil, even that close to the joints, fails to become foul, or to become in any way distinguishable from the soil of other portions of the field at the same depth after years of use.

It may be worth while to say a further word concerning the atmosphere of the settling-chamber which is, in a certain sense, a permanent cesspool. This air cannot fail to be made foul by the decomposition of the sewage there retained, but the frequent renewal of the small volume of sewage reduces this difficulty to the minimum. It seems important, however, to avoid the exposure of porous brick walls to such an atmosphere. A porous surface so exposed is especially favorable to bacterial growth. To avoid possible objection from this source the extension of the settling-chamber from the permanent level of the water to the surface of the ground is constructed of large vitrified pipes having a glazed and non-absorbent surface. It is desirable to remove the deposits of the settling-chamber from time to time—as observation may show to be necessary. No rule can be fixed as to this. In some cases the decomposition is so complete that the chamber never accumulates much deposit. In others it should be cleaned out monthly. The proper relation between size of chamber, amount of water discharged, and proportion of foreign matter in the water cannot be fixed in the present state of experience or with the apparatus.

Another question of much interest is *the cost of the work.* It is possible to construct a disposal system on the principle here set forth for little more than the cost of a good cesspool; but it is a case where parsimony is to be deprecated. There is nothing more important to the sanitary condition of an isolated residence than the perfect disposal of its organic wastes. It is conceded on all hands that the common cesspool has irremedial sanitary defects. The system that has been here described offers a perfect solution of this question — but perfect only when executed with the greatest care and the closest attention to details.

It should be repeated that however completely the system may be carried out, obstructions will from time to time occur in the drains. These will be indicated by a cessation of the growth of the grass at and beyond the point of obstruction. It is the work of a moment to uncover the drain, lift a few pipes, remove the obstruction and relay them on the permanent grade established by the gutter tiles, which themselves need never be disturbed.

It is proper to say that the flush-tank used for this purpose and many details connected with its construction and arrangement are protected by patents.

GEORGE E. WARING, JR.

FROM BAYREUTH TO RATISBON. — NOTES OF A HASTY TRIP. — VI.

TO any of my readers who have been art-students in Munich, Rothenburg will be a thrice-familiar name, and architectural students will perhaps remember to have seen its buildings cited in their books, though they are not among the most famous or most remarkable of German structures; but to all others the name of Rothenburg will be unknown — and this to a degree which seems inexplicable when we realize the interest of the place. Though it lies so near one of the great highways of travel — only an hour or so off the main track we are now pursuing between Würzburg and Nuremberg, and within three or four hours' easy journey of this latter place — it is not many years since even the enterprising Munich art-student did not know of its existence. Its long obscurity is one of the most interesting and anomalous facts of which I know. Founded in the very earliest days of which even German legends tell, rising soon to the rank of an important border fortress and later to be one of the greatest cities of Francenia and finally to the rank of a free imperial town; the residence of some of the most famous among German families; the centre of many a thrilling historical tale; one of the chief battlefields in the terrible Peasant War of the sixteenth century and one of the most constantly recurring names in the Thirty Years' War as well; a town for very many years second only to Nuremberg herself in all South-Western Germany, both politically and commercially considered — this Rothenburg, which had played its part in the very front rank of history for centuries together, fell in the last century into complete stagnation first, then into complete isolation, and finally into an oblivion so entire that very few of the architects, explorers, and art-lovers of Germany even, knew any more of its existence than that it was still a name upon the map. For myself I may say that I had never heard of any one going there from Dresden, where I had lived a number of years, until this, my last visit to the Fatherland. I then heard it spoken of for the first time and what seemed to me very wild tales told of its attractions. I asked why they had never been sung before and was told the town had been so completely forgotten by the world at large that when an officer who had passed through it during the Franco-German war reported what he had seen to the art-students of Munich, they heard his story with incredulity. So close at their doors, so unique in its condition, and yet so utterly ignored — the thing seemed an impossibility. But one of the most enterprising — of course an American — ran up to have a look at it, and since that time a constant stream of Munich students has swarmed thither every summer, and every tag and scrap of antiquity it shows has been drawn and painted over and over again and introduced into compositions of the most varied sorts.

This was nearly fifteen years ago and there was then no railroad to Rothenburg. Eight years ago, however, a little branch road was built. It still ends at Rothenburg, and its rolling-stock consists of but a few freight cars, a third-class coach, and a luggage van with a single second-class compartment, holding six persons, attached thereto. These run alternately from one point to the other on the single track. From these details it may be seen that the town is not yet a resort of German tourists, still less of foreign cockneys and "Cookies." To us to-day it seems an almost absolute oasis of antiquity in our modern world, almost absolutely untouched by the hand of the renovator, and, I had nearly said, by the hand of Father Time himself; but the lamenting Municher—the American painter Rosenthal who glories in the proud title of "Discoverer of Rothenburg" — tells a different tale. He says it is now "quite modern" as compared with its condition fifteen years ago, when all the walls were standing, when no stranger trod its streets, and when *not a single house* was nearly as young as the century. Yet even after listening to such plaints one is quite satisfied with what one finds — the completest picture in all Germany of an unaltered ancient town, undis-

turbed by the busy current of modern life or the prosaic touch of recent builders. Something has been destroyed but the stranger hardly misses it, and the little that has been put up — chiefly a small factory or two, outside the walls —is most inconspicuous; the inhabitants have to some extent abandoned their primitive costume but it still blossoms out on Sundays and holidays; and even the railway stops at its little station half a mile away from the gates. Visitors even now are rare, outside of the bands of artists who throng the little inns in summer and plant their camp-stools on every street corner and every external point of view. No one else appears save a rare German art-lover of non-tourist-like appearance. From the interest with which we were regarded on every hand when our nationality was discovered we drew the conclusion that we were the first American ladies who had ever burst upon the horizon of the town. Did my readers imagine that such a city existed this side of the Tartar steppes? The artists, however, — Rothenburg is one place where such are duly honored in public opinion, — who were at first asked with much curiosity what they could find to rave about in this dead old place, have at last infused a sense of his own importance into the mind of the Rothenburger. He is now very proud of his town and almost comically conscious of its pictorial resources; but whether this consciousness will be sufficient to lead him to keep it intact and to resist the current of modern innovation which is just encroaching upon his long-isolated domain, is a question. How many years will it be, one wonders, before Rothenburg will again take her place among the busy modern cities of Bavaria, or at least before her ancient relics will, instead of standing as they do now, unconcealed by later additions, be swamped and overlaid by nineteenth-century improvements and desecrations? The native may possibly— not unnaturally, indeed — grow to feel that he may have some rights and privileges as a citizen of modern industrial Germany, and should not be expected to exist in his provincial poverty and isolation as a mere conservator of the treasures of past days for the benefit of Munich art-students and trans-atlantic tourists. At all events it will be wise for those who want to see a town that is not only most beautiful in itself but doubly interesting as being the most perfect existent picture of a German city of past centuries, to make his pilgrimage to Rothenburg without delay. If he waits many years he will find perhaps an altered city or, if not, at least a crowd of Philistine tourists, the absence of whom to-day is not the least of Rothenburg's unique attractions.

One leaves the main route at the little station of Steinach and approaches the town from the east over a flat table-land which gives no hint of the actual situation of the town. This is the least interesting view of the place and he is fortunate who makes the journey at night, to wake in the morning in the very midst of its attractions. For the plain is cut by a deep, narrow, winding valley, with a little river at the bottom. On the east the bank rises high and steep some two hundred feet above the vale, and right on the edge of the declivity stands "Rothenburg on the Tauber" as we should say, "*an der Tauber*" as the average German would say, but, as the Rothenburger says in his quaint parlance, "*ob*" or "*above* the Tauber." The cliff runs out so sharply and in such broken lines, with such a diversity of projections and retreats that the town built along its edge stands as it were on a promontory with many little capes looking down on the exquisite valley and on the low rolling hills which rise again farther to the west. All along the edge runs the ancient wall, broken by many turrets and larger towers, and the houses are immediately behind it; — above it, even, for the wall itself often forms a part of their foundations. As seen from the valley below or from the opposite hills the view is unequalled, I think, in all Germany — looking more like the background in one of Albert Dürer's prints than like any other actual panorama we can find. The gray wall with its queer turrets, surmounted now by masses of foliage, now by red-roofed houses, is backed by the farther houses of the town which climb the somewhat hilly streets, and by the huge round or square masses of the many mediæval gateways; while above all, on the highest point rises the large late Gothic church of St. Jacob finished with two fine though not very lofty spires and forming an admirable crowning to the whole. Nowhere, neither in the town above nor in the valley below, is there the slightest trace of the modern builder to be seen—such works of his as do exist standing, as I have said, on the other, eastern, side of the town. Toward the south a road winds steeply up the hill and at its foot is a beautiful little Gothic church just by the bank of the stream, and near this a most picturesque stone bridge, built in the fourteenth century, with two superimposed rows of round arches.

Toward the other end of the town the cliff runs out into the longest and narrowest of all the tongues with which its line is broken. Here was the first beginning of the city, and here the ancient *Burg* which was built according to trustworthy evidence, in 419, though the settlement and first fortification of the spot had taken place nearly a hundred years before. This old tower called the "Dicke Thurm" or "Pharamund's Thurm" actually stood until the beginning of our own century when it was pulled down by the Bavarians when they took possession of the province. One has, by the way, a poor opinion of these Bavarian rulers, who almost at the time when they were striving so hard (and so unsuccessfully) to beautify Munich and make it "the modern Athens," allowed their deputies to pillage and what is still more inexcusable, to wantonly injure the wonderful old monuments which they had just stolen from their local rulers. It might not strike a visitor to Rothenburg to-day that there could ever have been any wholesale work of destruction organized in Rothenburg — so full are its streets of countless relics of the past; yet the records show that such was indeed the case. Not only were all the movable works of art appropriated — and the treasures of church and town-hall in this flourishing independent city were very rich and very varied — but a large number of its finest buildings were pulled down without the shadow of an excuse. The oldest buildings within the Burg were removed, including the open stone pavilion where the imperial justices had sat in the old days before the city became a free imperial town in 1397; and most of the moat between the Burg and the town was filled in. Besides this, four of the most beautiful churches were ruthlessly destroyed. One, a small pointed structure which stood free in the square near the *Jakobskirche* seems to have been the finest work of architecture of which the place could boast. Its stones were used in building the highways or were sold for the most trifling sums; and only the liberality of one of Rothenburg's citizens preserved the exquisite little church in the valley — not only beautiful in itself but the most striking object in the western view of the town — from sharing the same fate. It is no wonder that even to-day — especially, perhaps, to-day when he has just been awakened to the value of his treasures and a keener sense of his losses — the Rothenburger resents being called a Bavarian. He is a German, and, if he must have a province, a Franconian; but above all he is a *Rothenburger* — a (once) free and independent burgher of a (once) free and independent imperial city.

This is not the place to tell in detail the tale of Rothenburg's history — though a knowledge of it is most important to a full enjoyment of one's visit. It will be found briefly recited in an excellent hand-book to the town, which gives also much definite and reliable information about its architectural antiquities, written by a local antiquary, Herr Merz, to whom I am most glad to acknowledge my indebtedness, not only for a great part of the pleasure of my visit to his city, but for a great part of the data I shall be able, though only in most hasty fashion, to give my readers. Interesting as is the place in itself alone considered, it is of course doubly interesting when we know the scenes that its stones have witnessed — when we read how the peasants were beheaded by hundreds in the market-place after their terrible revolt, till their blood ran in streams down the steep *Schmiedegasse* where our little hotel stands; when we find the place where some of their leaders were lowered over the wall by the friendly monks of the Franciscan convent; when we peer into the dungeon where one of the greatest of the city fathers Heinrich Toppler — ancestor of the famous Nuremberg family of that name — met a dreadful death at the unjust hands of his jealous fellow citizens; when we see the great hall where Tilly sat in wrath after his long siege in the Thirty Years' War, vowing that the chief burghers should die; when we look at the great glass goblet holding thirteen quarts which was emptied at a draught by one of their number, who thus at the conqueror's challenge saved all their lives; when we see house after house where this emperor or another lodged on some famous journey north or south; when we examine the curious towers and gateways, each marked by some ghastly historical tale or ghostly and grotesque bit of legendary lore. Every stone of the city is alive with memories truthful or imaginary; but even if this were not so every street corner, every vista, whether from within or from without the gates, would still offer views of such beauty, such quaintness, such pictorial charm that the artist grows as excited, as bewildered, as wildly enthusiastic when on Rothenburg soil as is the historical student or the lover of fantastic mediæval lore. In the one case as in the other the degradation and isolation of the town has worked to preserve for us its charm. Neither modern history nor modern building has a word to say when Rothenburg tells its tale of mediæval and Renaissance days.

One line, however, of explanation. It must not be supposed that we have here an analogy with one of those dead and decaying Italian towns which offer an equally perfect picture of past times. Theirs is a picture torn, shattered and in distressful state. Rothenburg's is still more interesting because not painful in any way. It is not a decaying nest of beggars who wrap themselves in the tattered and mouldy garments of the past. It is a bright, jolly, contented little town, with its ancient buildings in good preservation and its streets, though not filled with the busy rush of modern life, yet peopled with well dressed, cheerful, "poor but honest" provincials and peasants. It is off the modern track, it is behind the times, but it is not dead or dying. It has a pleasantly busy little life within its own narrow borders, and every house is still the decent, cheerful abode of thrifty German burghers—though these are indeed but alien descendants of the rich, truculent, roystering, independent, art-loving burghers of centuries gone by. And in this fact lies, I repeat, the peculiar interest of the place. We do not see the same inhabitants it had of yore, and it requires a certain effort to reconstruct the brilliant panorama of its streets three hundred years ago. But the effort is not half so great since the town is still alive though in a different fashion, since we have more active basis to work upon than the filthy deserted streets, the plague-stricken houses, the wretched, degraded population of such a little Italian hill town as, for example, San Gemigniano.

But enough of generalities and of suggestions as to the interest Rothenburg possesses for the painter and the historian. I must now try to tell the architectural student very briefly of what it offers for his especial eye.

M. G. van Rensselaer.

THE PREVENTION OF FIRES IN THEATRES.

REPORT OF THE SPECIAL COMMITTEE OF THE FRANKLIN INSTITUTE.[1]

THE majority of the "Committee on the Prevention of Fires in Theatres" makes the following report: —

Theatres for two hundred years have not materially changed in form or arrangement, yet they have enormously increased in size.

The building materials employed for the stage have, however, remained the same (except that in many cases the joists of the stage floor are I-beams of iron); they are at present, as they formerly were, filled with masses of wood-work, boards, laths, canvas, gauze, etc., piled up as if it was the sole purpose of the builders to crowd together as many inflammable substances as possible.

The only important changes in theatres have been, first, the introduction of gas-lighting; and second, appliances for heating, both of which have tended to greatly increase the hazard.

Without going into any detailed statistics, your committee will give a few tables, compiled from the records of Foelsch and Hexamer, which are particularly instructive and interesting. For example, of 616 theatre fires there have occurred: —

In London	35	In Boston	11
In Paris	29	In Cincinnati	9
In New York	27	In New Orleans	8
In San Francisco	21	In Baltimore	6
In Philadelphia	17		

It is an alarming fact that the number of theatre fires is continually increasing. Sixty-nine occurred between 1851 and 1860, ninety-nine occurred between 1861 and 1870, one hundred and eighty-one occurred between 1871 and 1880.

During the last decade we have had theatre fires as follows: —

1871	20	1878	20
1872	13	1879	25
1873	15	1880	23
1874	15	1881	28
1875	14		
1876	19	Total	209
1877	17	Average, 19.	

Nineteen theatres have therefore, on the average, been destroyed yearly, during the last eleven years.

In a recent compilation your committee found that in 1882 twenty-three theatres were destroyed by fire.

Out of a great number of theatres, of which the age had been carefully ascertained, it is found that five out of two hundred and fifty-two theatres were burned before they were entirely finished or opened to the public; seventy were burned during the first five years after they had been built; thirty-eight were burned from the sixth to the tenth year of their existence; forty-five from the eleventh to the twentieth; twenty-seven from the twenty-first to the thirtieth; twelve from the thirty-first to the fortieth; twenty from the forty-first to the fiftieth; seventeen from the fifty-first to the sixtieth; seven from the sixty-first to the eightieth; eight from the eighty-first to the one hundredth, and three after the hundredth year of existence. From this table, which gives the longevity (if this expression may be allowed) of two hundred and fifty-two theatres, of which there are authentic accounts, may be seen that in the first five years nearly one-fourth were destroyed, while only three reached the age of one hundred years.

There is, perhaps, no fact which illustrates to us the frequency with which these fires occur so clearly as the repetition of these catastrophes at the same theatre. The following is a list of theatres which were three times totally destroyed by fire: Her Majesty's, London; Drury Lane, London; Covent Garden, London; the Imperial Opera-House, Moscow; Barnum's Theatre and Museum, New York; the Royal Theatre, Glasgow; the City Theatre, Namur; the Teatro São Pedro, Rio.

The following is a list of theatres destroyed four times: Astley's Amphitheatre, London; The Grand Opera, Paris; the City Theatre, Brunn; the National Theatre, Washington; the Bowery Theatre, of New York, leading the list, it having been five times totally destroyed by fire in less than forty years.

There is no more vicious argument than that which is frequently made, that it is unnecessary to improve theatres in our country, as they are much superior to those of Europe; lengthy arguments of this sort generally ending with the statement that fewer theatres are destroyed by fire in the United States than in any other country. To dispel such ideas from the public mind, your committee quotes the statistical comparison from the records of Foelsch and Hexamer, with the following astonishing results.

In grouping the six hundred and sixteen theatre fires, which have been recorded according to the countries in which they occurred, we have the following: —

In the United States	188	In Italy	50
In Great Britain	87	In Austria	33
In France	73	In Russia	28
In Germany	53	In Spain	21

All other smaller European States, fifty-six; all the other smaller non-European States, twenty-seven.

Your committee did not wish to make a report until it had thoroughly considered *how* the great number of fires at theatres, which is yearly increasing, could be lessened by the introduction of proper precautions; and by what means places where thousands congregate, not by necessity, but for pleasure, could be made entirely safe.

The consideration of the subject was taken up in the following order: — The hazards of (1) artificial light; (2) heating apparatus; (3) fire-works; (4) the use of paper wads in guns, and (5) the situation of the necessary work-shops, paint-lofts, spontaneous combustion of waste, etc.

After proper consideration of these subjects, your committee next studied methods for the improvement of theatres in regard to public safety, studying closely (1) the improvement of exits; (2) the division of the stage and rooms belonging thereto from the auditorium; (3) the opening of doors; (4) safety systems of lighting, heating, ventilation, etc.

The greatest number of fires are caused by the paraphernalia of illumination. The danger of coal-oil, which is much used in our country and Western theatres as an illuminating agent, is self-evident, but the hazards of gas, which but within a few years was the safest material at our command, are not so well understood. Besides the dangers of leakage and explosions, we have, in the case of gas illumination, hundreds of *flames* spread throughout a building, each forming a dangerous sphere around itself. Although the last-named dangers can and should be lessened by proper precautions, such as wire baskets and shields over the flames, still, when we consider the close proximity of the border-lights to combustible gauzes and canvas, and ponder on the hazards of temporary illuminating effects, where jets are fed through rubber hose which must be removed during change of scene, we must ask is there no other method of illuminating by which equally good artistic effects may be produced, and which at the same time will lessen or entirely do away with the hazards of the present system? Fortunately means are now at hand. By the labors of eminent electricians, we have at our disposal an agent by which the same, if not more brilliant, effects as those of gas can be produced, while doing away with the dangers of gas, the lamps themselves being absolutely safe. The finest piece of gauze might lie on one of these lamps without being harmed. At the same time the oppressive heat and deleterious products of combustion of gas are done away with.

Your committee does not deem it necessary to describe the systems of "Incandescent Electric-Lighting," the introduction of which would undoubtedly be one of the most necessary reforms of our present theatre system.

Your committee does not think that the arc-light could be introduced to advantage in theatres, except in conjunction with reflectors so as to increase the brilliancy of the incandescent lamps. The disadvantage of all arc systems would be (1) their unsteadiness; (2) the color of the rays, which would, as actors say, "bring out the paint," and by the want of warmth be disagreeable to the audiences. The immense advantages of electric incandescent lighting, assisted by reflected arc-lights over that of gas are, that it would do away with (1) the dangers from leakage and explosions of gas; (2) the oppressive heat of the numerous gas-flames, which dries out the wood-work, canvas, and ropes of the rigging-loft like tinder; (3) the fading of metallic colors caused by the products of gas combustion; (4) the very expensive processes of ventilation, which frequently do not give a sufficient supply of fresh air, may be greatly simplified, as it is the great number of gas-flames consuming more oxygen than the audiences do, which produces the "closeness" of theatres, and (5 and lastly) the fire-hazard from contact with the light, as the glowing parts with the incandescent lights are hermetically sealed inside of a glass globe. Your committee is fully aware of the fire-hazards of the electric-light, but the incandescent lights (and especially our American systems) are, through the efforts of different committees, and foremost that of the "New York Board of Fire Underwriters," so well supplied with safety "cut-outs" and "catches," and the erection of electric systems in the principal American cities is so well looked after by the special inspectors of the "Boards," that these dangers are reduced to a minimum. The practicability of electric-light for the illumination of theatres has been illustrated in the Savoy Theatre, of London, which has for over a year been illuminated with electric-light, proving it to be "a perfect artistic success."

Your committee has received the following letter from the management of the Savoy Theatre: —

"In reply to your inquiries (1) The electric-light is a perfect artistic success. (2) It costs at present, about twice as much as gas in England, but the proportion here would, no doubt, be much less, as gas is much dearer than in England. Ultimately, no doubt, the cost in England will be the same. Yours faithfully, R. DOYLY CARTE."

Theatres should be heated by steam or hot-water systems. Stoves and heaters are objectionable. Where heaters are used, one-fifth of the registers should be so arranged that they cannot be closed, as

[1] Presented and accepted at the stated meeting of the Institute held Wednesday, April 18, 1883, and published in the *Journal of the Franklin Institute.*

many fires have been caused by overheated hot air pipes, in cases where all registers have been closed and the hot air could not escape. All register openings should be closed by fine wire netting to prevent combustible particles dropping into hot-air flues.

The only manner in which the dangers of fireworks may be lessened is by "*impregnating*" all scenery and gauze by approved processes. Your committee has for the past six months experimented with all ascertainable processes of impregnation. A process which your committee has found to be deserving of entire public confidence is that of Dr. J. Pafen, of Frankfort, Germany, which has been introduced to great extent; of its many commendable properties the following have been certified on inquiry. The material may be used on scenery which has been painted upon, without destroying or injuring the colors; scenery which is impregnated in this manner does not, on being used, fill the air with a fine dust, deleterious to actors and singers, which was found to be a most disagreeable feature in other processes.

Your committee, at its request through the kindness of Messrs. Mertz and Schaede, received the following testimonial: —

FRANKFORT-ON-THE-MAIN, August 2, 1882.

We herewith certify, on request of Messrs. Gustav Schaede and C. Rudolph Mertz, who have purchased the sole right to impregnate combustible substances for North and South America from Dr. Pafen, of this city, that after one year's use the following results have been obtained: —

1st. The objects impregnated have proved, even after considerable length of use, to be perfectly incombustible.

2d. This quality has not been diminished by use in the least, as we have ascertained by repeated tests.

3d. The fabrics and colors have not suffered by the impregnation.

4th. No injurious effect of any kind has been observed to occur by Dr. Pafen's method on the voices of the singers and actors.

C. RUDOLPH,
Engineer of the Opera-House.
MAGNUS PROESLER,
Inspector of the Opera-House.

Satisfactory results have also been obtained by the processes of Gautsch, Judlin, by sulphate of ammonia, and by silica deposited into the fibres by precipitation.

Besides impregnating the scenery, the wood-work should be covered with some fire-proof paint. Your committee experimented with all the solutions they could ascertain, and had most satisfactory results from "asbestos paint," and especially from the so-called asbestos concrete.

Paper wads in guns and pistols, by settling on gauze or canvas while still glowing, have repeatedly caused theatre fires. Your committee believes that the practice of using wads of hair would overcome this hazard. Quick-burning powder is recommended for theatre fire-arms; since the sole purpose is to make a noise, and slow-burning powders, especially *soda powders*, being deliquescent, such grains of powder will, when ignited, be carried in a burning condition considerable distances from the muzzle of the gun, thus readily igniting combustible objects.

The work-shops and paint-loft should be located outside of the theatre proper, and should communicate with the stage only by double iron-lined doors with stone sills.

Your committee has thought best to bring all minor matters into a series of recommendations, but before proceeding to give them must mention that there are important automatic devices for opening a smoke-flue above the stage, lowering the fire-proof curtain, and sending an alarm, none of which have, however, been introduced into the United States.

Your committee have sought much to find a good fire-proof drop-curtain.

The results obtained of woven asbestos *cloth* were most satisfactory, and smaller experiments, as well as one performed on a large scale at the Brooklyn Navy Yard, convinced your committee that it makes an excellent fire-curtain.

Transparent wire drop-curtains are objectionable, as in case of fire they allow smoke to pass through them, and by not cutting off the view of the fire from the auditorium, increase the panic.

Your committee does not think that the curtain used at the new Opera-House at Geneva is much better.

This consists of a wire screen of very fine meshes, like the material employed for a Davy's safety lamp, they being covered on both sides with a coarser wire netting. Curtains of this kind have not yet stood the "fire test." Your committee believes that in case of fire it will not be of better service than the ordinary wire curtain.

The curtain recently constructed for the new theatre "des Celestins," at Lyons, is constructed on a similar principle to the above, and is hemmed in by a border of sheet-iron two metres broad. Although this will somewhat reduce some objections, yet it is not a commendable curtain.

At Lyons, Lille, Toulon, and for the new "Théâtre des Arts," at Rouen, curtains of iron have been introduced. These consist of a number of horizontal slats put together like Venetian window blinds, and are raised and lowered by hydraulic apparatus. Whether such curtains will in the course of time prove themselves successful, is still problematical. The two great objections which your committee sees in these curtains is their tendency to rust, and the ease with which they would warp at large differences of temperature, as in case of fire.

Sliding curtains of corrugated sheet-iron have stood best in case of fire. They have been employed with great success at the Hof Theatre, Dresden; Central Halle, Hamburg; Hof and National Theatre, Munich; New Opera-House, Frankfort-on-the-Main; Wallmer and Friedrichwilhelmstadter, Belle-Alliance Walhalla, and Central Theatres at Berlin; Concordia Theatre, Hamburg, and others.

Your committee cannot too strongly bring out the fact that the regulating apparatus of the curtain should be on the stage; and not, as was the case at Vienna, in the rigging-loft, a place which in case of fire immediately becomes inaccessible. If the apparatus is one which is set in motion by a crank, the handle should be so fixed that it cannot be removed, or it will in most cases be taken off in order to gain room, be stowed away somewhere, and will at the moment of danger be missing.

Your committee heartily endorses the action of the authorities of Vienna, who now require a man posted at the safety-curtain lowering apparatus during all performances.

Your committee has had no chance of testing the patent curtain of Carl Pfaff, but from the report of the special committee of the "Oesterreichischen Ingenieur und Architekten-Verein," has been convinced that it is one, if not the most meritorious fire-curtain known up to this time; the above committee after careful tests gave the following report of its properties: (1) That a curtain constructed on this principle could be used daily with surety and with a small amount of trouble. (2) That they were satisfied of the durability of the proposed invention. (3) That in case of fire the invention would work with rapidity. (4) That it would give the auditorium the necessary protection. (5) That it would restrict the fire to the stage.

Your committee begs leave to submit the following recommendations, many of which are already law in several European States: —

First. All corridors should increase in width from the theatre to the open air.

Second. All extra exits (fire-corridors) should be marked as such in large, bold letters; should be lighted by oil lamps (not petroleum products; sperm or lard oil is recommended), and should be unbarred from the opening of the theatre until it is closed. Before the close of every performance they should be opened, that the extra exits may become known to the public.

Third. All doors should open outwards.

Fourth. Banisters or railings should be fastened to the walls of all stairways; they should be fitted into grooves in the wall; enough room being left between the rail and the groove to allow hands to slide freely on the rail.

Fifth. Long rows of seats should *not* be permitted. Rows should be cut by an aisle at least at every twenty feet.

Sixth. Movable seats should not be allowed. Seats should be tightly screwed to the floor. Fixed chairs with a spring attachment, which throws back the seats when not occupied, are strongly recommended.

Seventh. No scenery, properties, materials, or impediments of any description should be allowed to remain in corridors.

Eighth. The stage should be divided from the auditorium by a fire-proof drop-curtain. Transparent wire curtains should not be used for this purpose.

Ninth. The fire-proof drop-curtain should be kept down at al. times except during rehearsals and performances; after which it should be immediately let down, and not raised until fifteen minutes before the beginning of the next performance.

Tenth. Doors and openings in the proscenium wall should be with stone sills, iron lined (on both sides), and should be self-closing.

Eleventh. The system of lighting the stage should be separated from that of lighting the auditorium; each should have a distinct feed-pipe or circuit.

Twelfth. Gas-flames should (without exception) be covered by wire baskets. These baskets are to be made sufficiently large, so that the wire may never be heated to a greater temperature than 250°.

Thirteenth. Border and foot lights should be lighted with electricity, *not with an open light.*

Fourteenth. Every theatre should be supplied with a sufficient number of fire-hydrants, with hose and nozzle attached ready for instant use, and not removable.

Fifteenth. A large reservoir, holding at least eight thousand gallons, should be placed over the auditorium ceiling; kept at all times full of water, connecting with stand-pipes, and not allowed to freeze.

Sixteenth. A sufficient number of fire-buckets (used in case of fire only) kept always filled should be distributed conspicuously over the premises.

Seventeenth. Every theatre should have a number (varying with the size of the theatre) of firemen.

Eighteenth. In order to keep control of the various theatres, a theatre inspector should be appointed in each town, who should have full power to enter every theatre at any moment, and whose duty it should be to see that these or other suggestions made law by an act of legislature, are faithfully carried out.

Nineteenth. The testing of all gas-pipes, hydrants, and fire appliances should be performed at least four times a year, and oftener if the theatre inspector requires.

Twentieth. Every theatre should be connected with the nearest fire-station by numerous electric alarms, most of which should be automatic.

Twenty-first. The theatre should be patrolled at day and night, by watchmen, who should be controlled by watch-clocks, distributed over various parts of the building.

Twenty-second. No smoking should be allowed in the theatre, except where required on the stage in the representation of plays.

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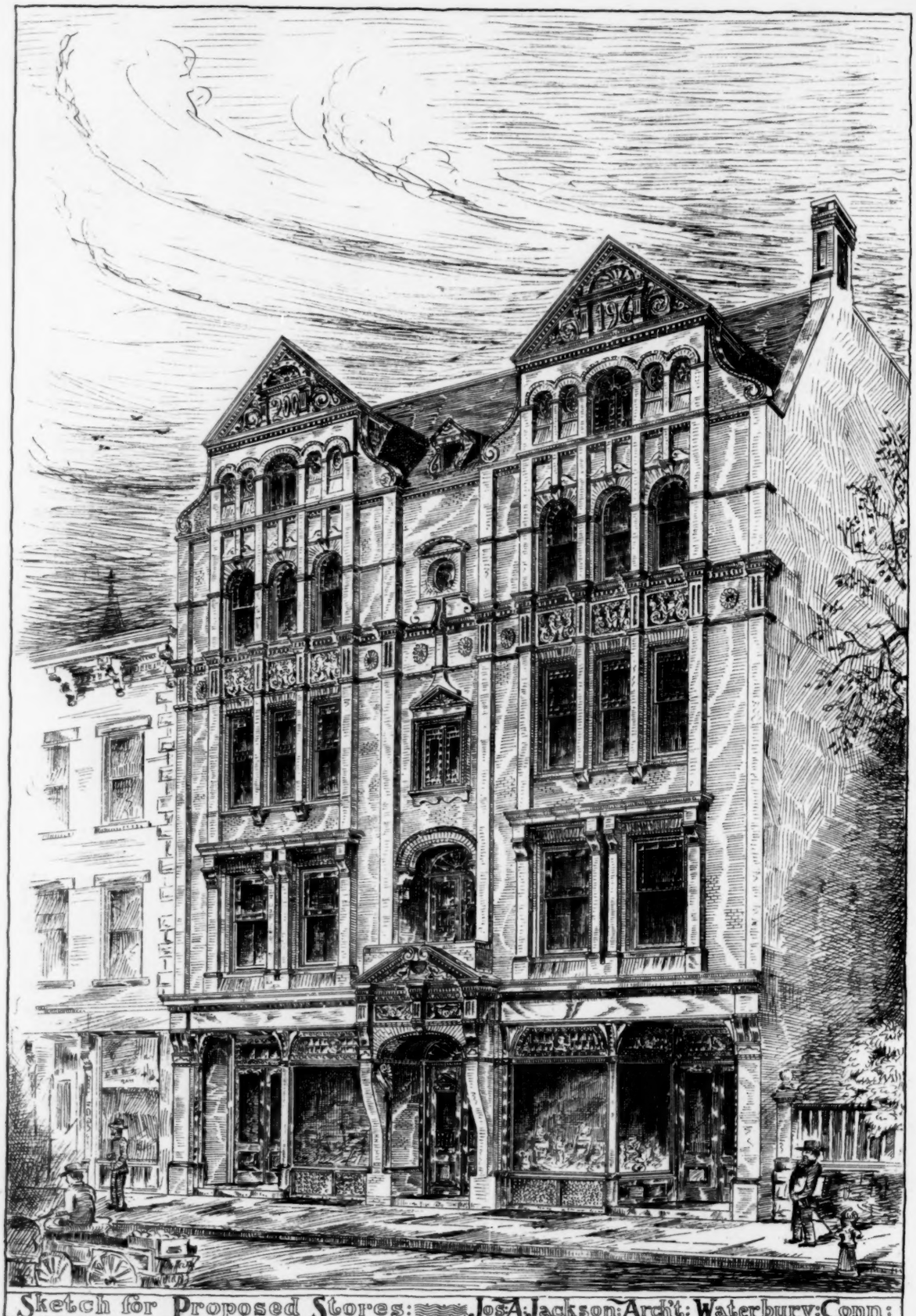

Sketch for Proposed Stores: Jos. A. Jackson: Arch't: Waterbury: Conn:

Heliotype Printing Co. 211 Tremont St. Boston.

No. 389 American Architect and Building News, June 9, 1883.

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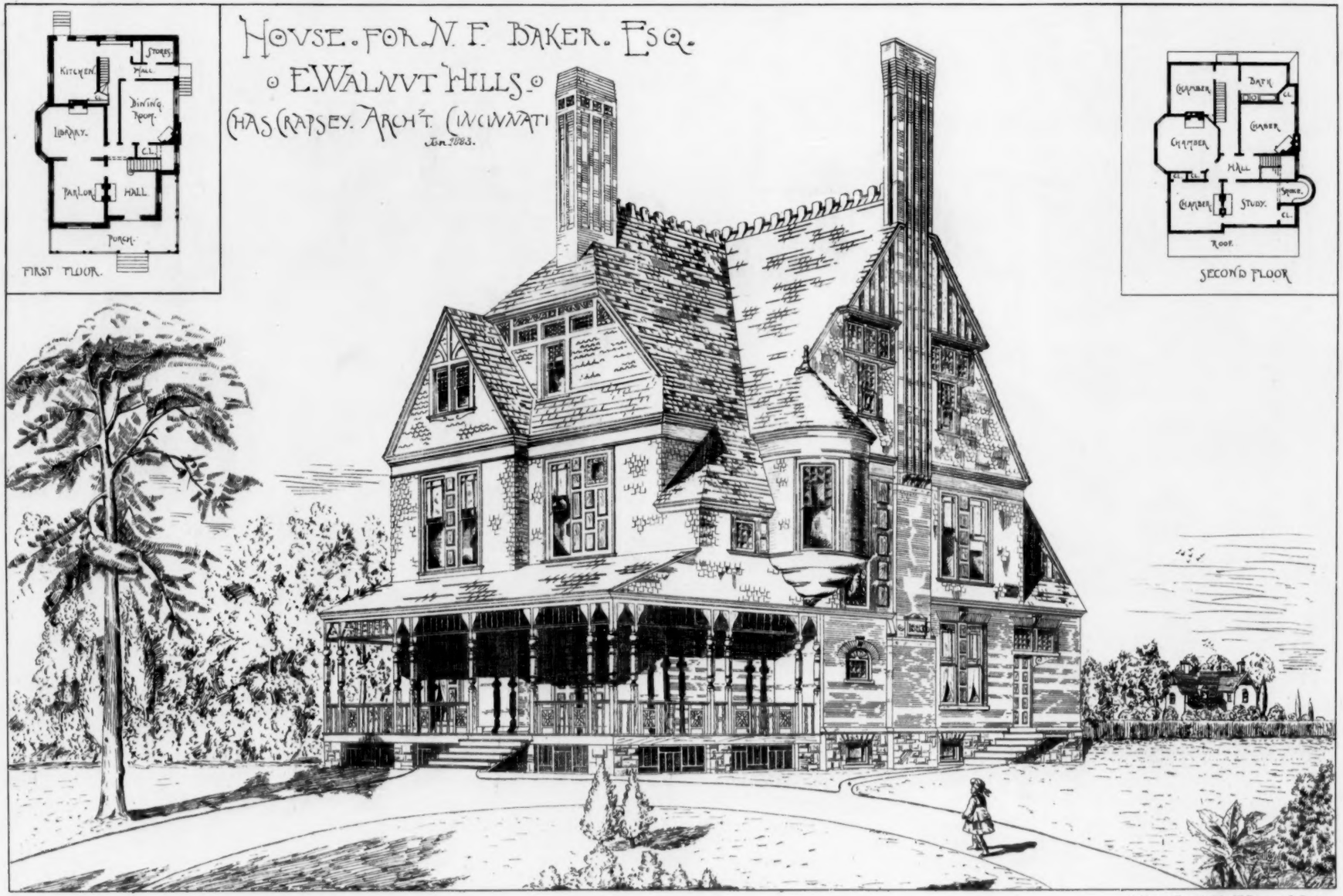
House for N. F. Baker, Esq.

E. Walnut Hills.

Chas Crapsey, Arch't, Cincinnati

Jan. 1883.



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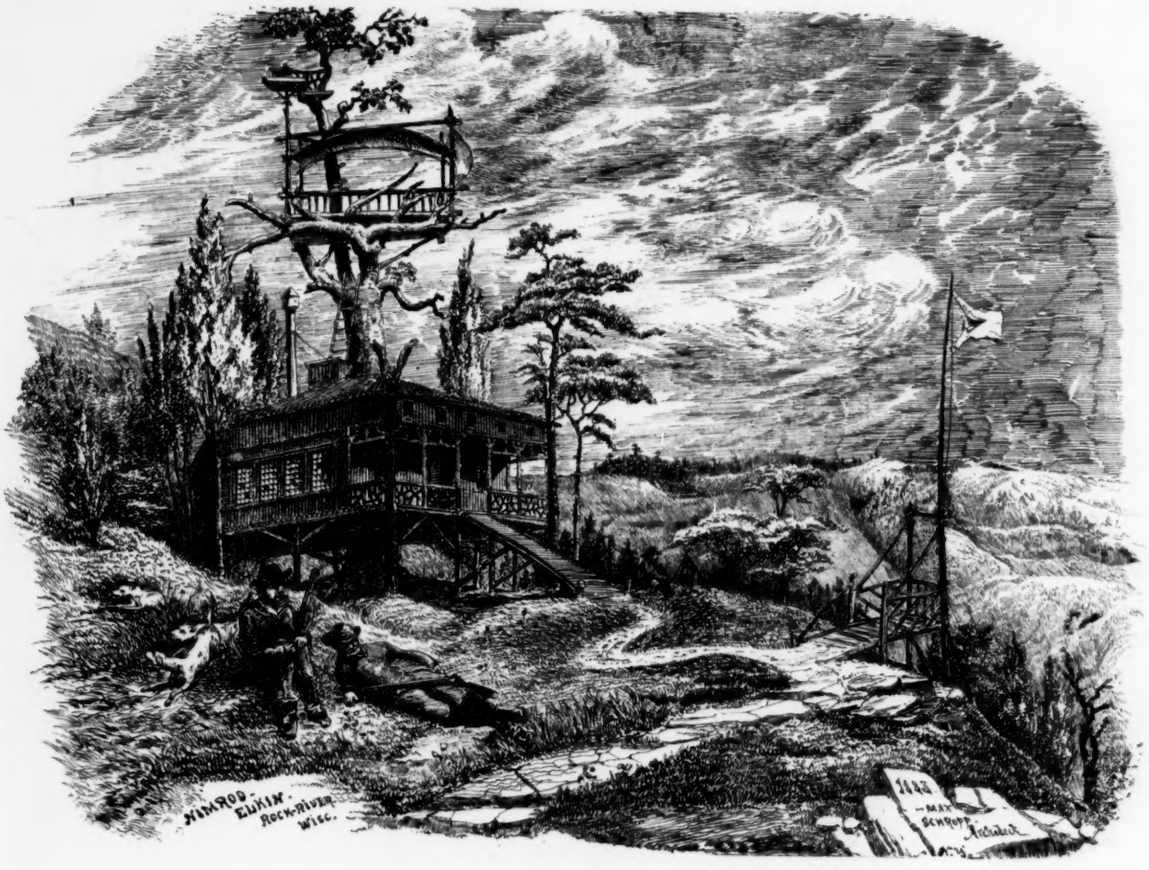
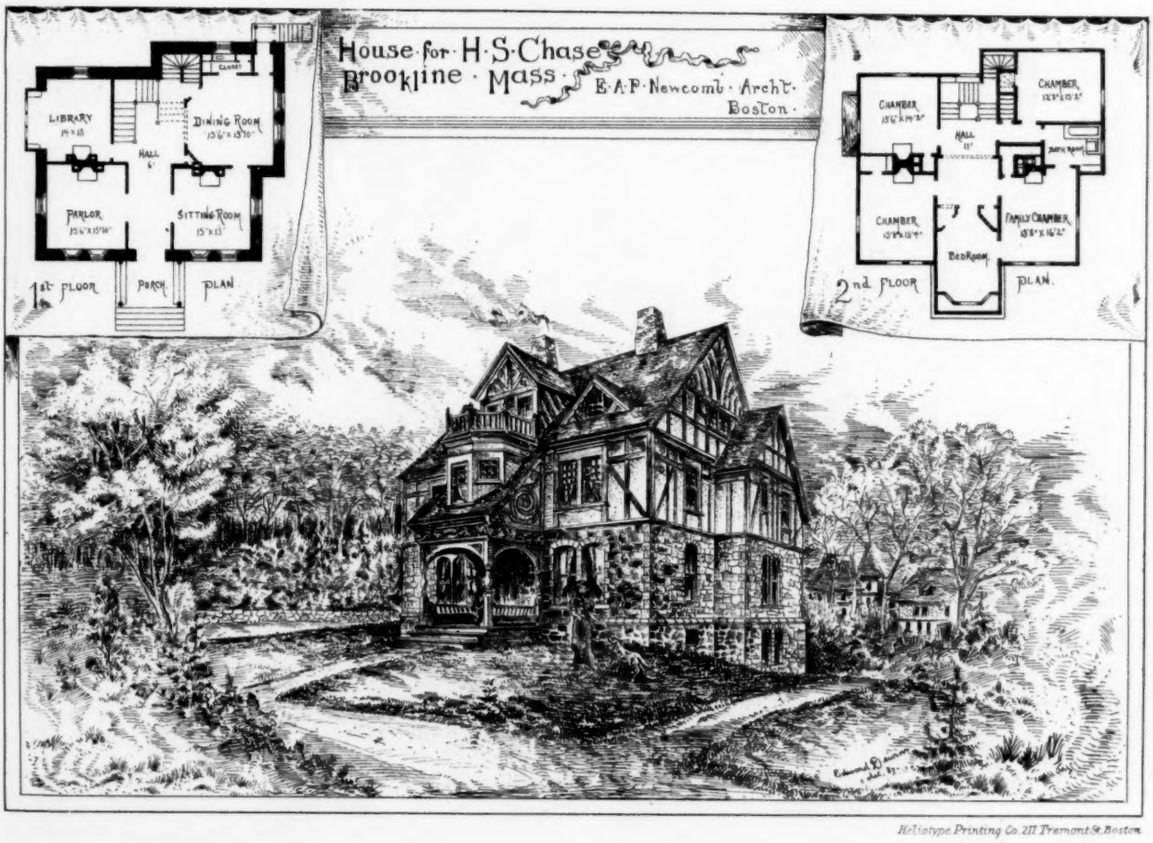


House for H.S. Chase
Brookline Mass
E.A.F. Newcomb Archt.
Boston.



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House to be built at Washington – Conn.
Rossiter & Wright Archts
149. B'way New York

Heliotype Printing Co., Boston.

Twenty-third. No swinging gas-brackets should be allowed in any part of the theatre.

Twenty-fourth. Wood-work which is within eighteen inches of a gas-flame should be covered with sheet-iron or tin, but in such a manner that air may circulate between the iron and the wood.

Twenty-fifth. Border-lights should be so enclosed that no part of the enclosing body may be heated to a higher temperature than 250° Fahrenheit.

Twenty-sixth. Where heaters are employed the registers should be covered by fine wire netting, and at least one-fifth of the registers should be so arranged that they cannot be closed.

Twenty-seventh. Scenery and other stage supplies should not be stored on the stage, but in a separate *fire-proof* dock.

Twenty-eighth. No more scenery should be put upon the stage than is necessary for, at most, two performances.

Twenty-ninth. The use of fireworks, Roman candles, red fires, etc., should only be permitted when it has been shown to the Theatre Inspector's satisfaction that the scenery and gauzes have been impregnated by proper substances, and that the wood-work has been covered by some satisfactory solution.

Thirtieth. Wads of pistols and guns should be of hair only (not paper or cotton).

Thirty-first. If straw, hay or any other easily inflammable substance should be required in a scene, it should be removed to a fire-proof place immediately after the scene in which it is used.

Thirty-second. A large smoke-flue should be provided above the stage. Automatic devices are recommended.

Thirty-third. That the public itself may have control in this matter, a complaint book should, in every theatre, be laid open to the public, where any individual may enter any faults of construction or arrangement which he has noticed. This book should not be the property of the proprietor of the theatre, but should belong to the Theatre Inspector, the Fire Marshal, and Building Inspector of the city.

Thirty-fourth. Numerous permanent iron ladders should be fixed on the outside of the building, so that the firemen may readily enter the theatre while the corridors are still filled by the departing audience.

Thirty-fifth. Oil lamps should be cleaned and trimmed in a separate lamp and oil room, where, also, the oil should be stored. Oily rags and waste should be kept in small quantities only, and in iron boxes closed by an iron lid, and standing on brick, or other fire-proof substance, and as soon as they accumulate should be burnt.

Thirty-sixth. The work-shops and paint-loft should be outside of the stage building.

Thirty-seventh. Automatic sprinklers and steam jets should be placed over and on the stage. (The theatres of Boston are required by law to protect the stage by a system of automatic sprinklers. In November, 1882, a fire was extinguished at the Providence Theatre Comique, during a play, by automatic sprinklers, with so little injury, even to the scenery, that the performance was not stopped).

Thirty-eighth. Ground-plans of the auditorium, giving a clear idea of the building, corridors, stairways, etc., should be prominently located in the halls, and should be printed on the back of programmes.

Your committee is well aware of, and have followed with sympathy and hearty approval the labors of the Asphaleia, a society of prominent German and Austrian technologists, who have made it their purpose to construct a theatre up to the requirements of our time, which should not only fulfil all technical qualities, but bring the theatre to an artistic perfection which it now lacks. This work your committee thinks they have almost accomplished, and all new theatres should be built according to their suggestions.

Your committee has tried to correct objectionable and suggest better features in theatres as they now exist, and has especially tried to make suggestions in reference to American theatres.

Your committee at first intended to inspect and report on all theatres of Philadelphia, as was done by a similar committee of the Citizens' Association of Chicago, but on due consideration doubted whether it was vested with sufficient power by the Institute to carry this plan into effect.

Your committee in closing its report cannot help referring to two most necessary factors in reforming our theatres. (1) The education of the public on this subject by popular lectures, articles and papers: and (2) the co-operation of prominent mechanics and scientists. While the mechanical engineer of to-day, through the arm of a child, moves enormous loads by his hydraulic cranes, the numerous hoisting apparatuses of the stage are of a truly pitiable simplicity.

The problem of building theatres properly is eminently one for the mechanical engineer, and will never be solved if the technical resources of our age are not taken into account, and brought to bear on the question.

C. JOHN HEXAMER, C. E.
THOMAS SHAW, M. E.
HENRY R. HEYL.

MINORITY REPORT.

PHILADELPHIA, April 18, 1883.

The undersigned heartily approves of all the foregoing except the thirty-second recommendation, for a smoke-flue above the stage, and that portion which refers to the work of the Asphaleia, concerning which he has no personal knowledge. He considers a smoke-flue above the stage as in the highest degree dangerous, and calculated to increase the draught and strengthen the flames, producing a general conflagration instead of a local blaze.

ROBERT GRIMSHAW.

THE ILLUSTRATIONS.

HOUSE FOR N. F. BAKER, ESQ., WALNUT HILLS, CINCINNATI, O. MR. CHARLES CRAPSEY, ARCHITECT.

THIS house was lately contracted for, the contract price being $10,265, the owner to furnish grates, mantels, gas-fixtures and furnace. The inside finish is of clear white-pine varnished, the stairs only being of hard-wood. The outside walls are of local brick laid in red mortar for the first story, and frame and shingles above. Roof of slate. Four good finished rooms in the attic. H. E. Holtzinger, builder.

HOUSE OF H. S. CHASE, ESQ., BROOKLINE, MASS. MR. E. A. P. NEWCOMB, ARCHITECT, BOSTON, MASS.

NIMROD–ELKIN, ROCK RIVER, WIS. MR. MAX SCHROFF, ARCHITECT.

SKETCH FOR PROPOSED STORES. MR. JOSEPH A. JACKSON, ARCHITECT, WATERBURY, CONN.

HOUSE FOR E. K. ROSSITER, ESQ., WASHINGTON, CONN. MESSRS. ROSSITER & WRIGHT, ARCHITECTS, NEW YORK, N. Y.

THE house has been designed to take advantage of a rocky knoll and a parapet wall is to be built around as shown for a rough balcony enclosure. In the sketch has been given an accurate outline of the situation, with the trees which form an important adjunct of the site, which, taken all in all, is very picturesque. The house is to be built of wood, upper story shingled, and slate roof. Cost of house about $8,000.

SUGGESTIONS FOR THE CONDUCT OF ARCHITECTURAL COMPETITIONS.

SANCTIONED BY THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

9 CONDUIT STREET, HANOVER SQUARE, LONDON, W.

THE promoters of an intended competition should, as their first step, appoint one or more professional assessors, architects of established reputation, whose name or names should be published in the original advertisements and instructions, and whose decision should govern the selection of the designs in all stages of the competition.

2.— The duty of these assessors should be:—

a. To draw up the particulars and conditions as instructions to competitors, or to advise upon and, should it be necessary, revise or supplement them if already drawn up;

b. To determine which of the designs conform to the instructions;

c. To exclude all others; and

d. To advise the promoters on the relative merits of the designs admitted to the competition.

3.— Every member of the body promoting the competition, and every assessor engaged upon it, should abstain absolutely from taking part in the said competition, or from acting as architect in the execution of the proposed work.

4.— The number and scale of the required drawings should be distinctly stated, and they should not be more in number or to a larger scale than necessary to clearly explain the design. If perspective views be required, they should be uniform in size, number, mode of coloring, etc.

5.—Competitions should be initiated either (A) by inviting preliminary sketches, involving only moderate cost to each competitor, preparatory to a final competition; or (B) by invitation without sketches; or (C) by personal invitation. That is to say:—

If (A)—By advertisement, inviting architects willing to compete for . . . . (*here describe the intended work*) to send in their names by a given day, on receipt of which each applicant should be supplied with the instructions prepared under the advice of the professional assessor or assessors. Each applicant, from such instructions, should send in by a given date a sketch design (*here describe the limit and character of such sketches*). The promoters, with the advice of the professional assessor or assessors, should select from such sketch designs not less than . . . . (*here specify the number*), the authors of which should be invited to join in a final competition, in which each should receive £ . . . . (*here state the amount*) for the preparation of his design. From these designs a choice should be made of the architect to carry out the work.

If (B) without sketches — By advertisement, inviting architects willing to compete for . . . . (*here describe the intended work*) to send in their names by a given day, with such other information as the candidate may think likely to advance his claim to be admitted to the competition. From these names the promoters, with the advice of the professional assessor or assessors, should select . . . . (*here specify the number*) to compete, and each competitor thus selected should receive £ . . . . (*here state the amount*) for the preparation of his design. From these designs a choice should be made of the architect to carry out the work.

If (c) — By personal invitation to a limited number of selected architects, to join in a competition for . . . . (*here describe the intended work*), each competitor to receive £ . . . . (*here state the amount*) for the preparation of his design.

The author of the design which may be awarded the first place in point of merit should be employed to carry out the work.

In each case, (a), (b) and (c), the amount of remuneration for designs should be fixed by the promoters, acting under the advice of the professional assessor or assessors.

6.— Each design should be distinguished only by a motto or device, and any attempt to influence the decision of the promoters, or of the assessor or assessors, should disqualify a competitor.

7.— A design should be excluded from a competition: —

a. If sent in after the period named (accidents in transit excepted);

b. If in violation of the instructions;

c. If it do not substantially give the accommodation asked for;

d. If it exceed the limits of site, and

e. If the assessor or assessors (with or without the assistance of a surveyor) should determine that its probable cost will exceed the intended outlay (if specified in the instructions), or the estimate of the competitor should no outlay be specified.

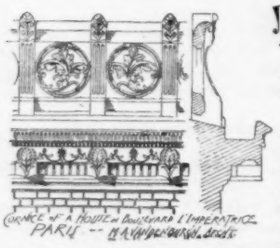
8.— It is desirable, in a final competition under section (a) of clause 5, that all the submitted designs except any excluded under clause 7, should, with the consent of their authors, be publicly exhibited after the final award. The decision of the assessor or assessors and of the promoters should be published at the time of exhibition.

9.— The work, if carried out in any shape, should be placed in the hands of the architect whose design has been adjudged to be the best, and he should be placed in exactly the same position, in relation to the employer and the intended work, as he would have been had he alone been professionally consulted. In case a competition has resulted in the selection of an architect, and the instructions to him to proceed farther in the matter are not given within twelve months from the time of the architect being selected, he should be paid at the usual professional rate, under the advice of the assessor or assessors, exclusive of the sum paid to him in common with the other competitors: such payment to be taken on account of commission, should the work be carried out at a future time under his superintendence from the design submitted by him in competition.

J. Macvicar Anderson, *Hon. Sec.*
William H. White, *Secretary.*

Re-issue: 9th April, 1883.

THE POWER OF EXPLOSIVES.



The following by Mr. George M. Roberts, technical manager for Nobel's Explosives Co., Limited, of England, conveys information of general interest: —

Nitro-glycerine and dynamite do not, when exploded, exert such a force as is popularly believed. To speak precisely, the power developed by the explosion of a ton of dynamite is equal to 45,675 tons raised one foot, or 45,675 foot-tons. One ton of nitro-glycerine similarly exploded will exert a power of 64,452 foot-tons, and one ton of blasting gelatine, similarly exploded, 71,050 foot-tons. These figures, although large, are not enormous, and need not excite terror. Seventy-one thousand tons of ordinary building-stone, if arranged in the form of a cube, would measure only ninety-six feet on the side, and if it were possible to concentrate the whole force of a ton of blasting gelatine at the moment of explosion on such mass, the only effect would be to lift it to the height of a foot. The foregoing figures are derived from experiments made at Ardeer with an instrument which gives accurate results in measuring the force of explosives. The power exerted on surrounding objects by an explosion is in the inverse ratio of the cube of the distance from the point of explosion. Thus, at one hundred feet from the exact point of an explosion the power is only the cube of one one-hundredth, or one one-millionth part of what it is at a distance of only one foot from that point; or, in other words, if the power at one foot from the spot be represented by 1,000,000, at the distance of one hundred feet it will be but 1. It is thus seen that the effects are intense locally, but comparatively trifling at even short distances. If a ton of dynamite or nitro-glycerine were exploded in a London street the effects would be felt severely in the immediate neighborhood only of the explosion, and beyond that they would be confined to the mere breakage of windows. Indeed, it would be impossible by a single explosion, however large, to do damage to any considerable extent beyond the immediate neighborhood in which the explosion took place. On one occasion I happened to witness the explosion of over a ton of nitro-glycerine from a distance of only sixty yards. The nitro-glycerine was about ten feet beneath the level of the ground, which was of sand and covered with water. Beyond the breakage of windows and the bursting of a few doors in the surrounding buildings there was no damage done. A little sand was thrown over me, but I received no personal injury.

Vague statements have been made from time to time, promulgated to induce the belief that there are stronger explosives than nitro-glycerine and nitro-glycerine preparations, and that the wretched men who have been guilty of the late attempts on public buildings, etc., are in possession of more powerful explosives than any known to chemists. The public may rest assured that such is not the case. Nitro-glycerine and its preparations form the strongest explosives yet known. The strongest of these is the material known as blasting gelatine. It consists of nitro-glycerine combined with a certain portion of nitrated cotton. It is much more difficult to prepare than either nitro-glycerine or dynamite, and cannot be made by unskilled persons. If the power of dynamite be represented by 1,000, that of nitro-glycerine will be 1,411, and of blasting gelatine 1,555. The one and one-half hundred-weight of nitro-glycerine seized by the police the other day would, if exploded, exert a force of only 4,833 foot-tons, and if converted into dynamite it would represent a force of only 4,567 foot-tons. The conversion of nitro-glycerine into dynamite reduces the power of the former, but renders it more easy and safe to handle and use. The power given above is comparatively insignificant, and as it is the maximum effect that could be produced under the most favorable circumstances on the very spot of explosion, it never could be obtained in practice. It is therefore absurd to say, as was said the other day in a London paper, that the explosion of such a quantity of nitro-glycerine would blow up the whole of London. In fact the explosion could scarcely be heard over London, and the damage done by it would be strictly local. I have often, by way of experiment, exploded one pound of dynamite suspended from the end of a fishing-rod by a string about six feet long, holding the rod in my hand the while. As there is no solid matter to project I received no injury, and the end of the fishing-rod was not even scratched. About three feet of the string at the end of the rod was always left uninjured.

A BIOGRAPHICAL SKETCH AND ITS LESSONS.

Tomb of Felix Duban, Paris. M. Duc sculpt.

The scene of this narrative is laid in the Isle of Ely,—that solitary eminence which, encircled by the sluggish Ouse, breaks the monotonous level of the lone fen country,—whereon 1,200 years ago Saint Etheldreda in her flight from Egfrith, laid the foundations of her monastery, rousing with hymns of unaccustomed praise the wolf and the otter from their lair, and the stork and the bittern from their immemorial home.

The lapse of centuries has wrought but little change in this desolate region. No forests have been cleared by the encroaching industry of the husbandman, nor has the earth been cumbered and the heavens darkened by the hideous but inevitable accompaniments of our spreading civilization. Far as the eye can reach the land lies wrapped in its mantle of gray mist, its long level lines broken here and there by a row of poplars, standing as sentinels over the quiet little homesteads which dot the landscape, their red tiled roofs and chimney-tops telling sharply out in "the purer ether and diviner air" above the level of perpetual mist. The description of the locality by an old chronicler will in the main apply. Still "it is a watery waste, affording only deep mud with sedge and reeds, and possest by birds, yea rather [he adds] much more by devils."

And such was its aspect in the first quarter of the fourteenth century, in which our story opens. It is one of the saddest periods in our annals. The hand of a recent historian, whose early death we all deplore, has painted it for us with unexampled power and fidelity, and it is scarcely possible to deepen the shades of the picture he has left us. A despotic king, a dissolute court, a turbulent baronage "grinding the faces of the poor," a despairing peasantry, a country harried by bandits; wars in France, wars in Scotland, wars on every hand, just and unjust, waged on any or no pretext, and pursued with unrelenting and undiscriminating ferocity; and behind all this the twin spectres of plague and famine! The conflict of man with man, and of nation with nation, was as fierce and persistent as though the message of peace on earth had never been delivered, and man's only business here was to kill and be killed. And yet one catches here and there, as through a rift in the encompassing gloom, glimpses as of a brighter world, visions of peaceful and holy lives, homes of art, culture and religion.

In the year of grace, 1314, the fatal year of Bannockburn, with its savagery and shame, there is, so the chronicler of St. Alban's tells us, in his cloister at Ely, a young monk, renowned for skill in the goldsmith's art. The word was then accurately descriptive. If one reflects for a moment upon the part which that art played in both ecclesiastical and civil life, the priceless relics which have come down to our day, the countless treasures which were "borrowed" by monarchs perplexed between a hungry army and empty coffers,—on those other treasures which were cast into the melting-pot by a rapacious king and his greedy court; if one thinks of the sacred

vessels used in the services of the church, the shrines, the lamps, the jewelled crosses, the costly trappings of kings and courtiers, one will begin to realize the scope of that beautiful art in which this young monk excelled, and to appreciate that skill which could distinguish him amongst so many cunning fellow artists; but, in addition to this special gift, he was, we are told, no less remarkable for his acquaintance with the mechanical arts, and their application to the business of life. Clearly, then, this is no ordinary man. A proficient in both art and science; endowed, moreover, with other graces, of which we shall hear more anon. Thus equipped, he turned his mind, the records say, to the study of architecture. We need no assurance that the art never had a more promising student, and we can well believe that distinction in his new sphere was sure and speedy. His bishop, John de Hotham, a munificent patron of art, a courtly prelate, and a Lord Chancellor to boot, employed on Royal embassies, speeding hither and thither at his king's behest, charged with delicate and weighty duties, having a wide knowledge, therefore, of men and cities, and versed in all the lore of statecraft,—saw the stuff of which this monk was made, and quickly got him elected subprior, charging him with, as there is some reason to think, the design —certainly, with the joint execution with John of Wisbech,—of the beautiful St. Mary's Chapel (now Trinity Church), attached to the cathedral church of Ely. The foundation-stone was laid by our hero, Alan, in 1321, and we have clear evidence that he was at the same time engaged in the design of Prior Crauden's Chapel, the new sacristy, and many minor monastic buildings. So evident is his supremacy in his new calling that he is forthwith elected sacristan, and, in virtue of this office, he has the sole charge of the fabric of the cathedral and its accessory buildings.

There were pressing reasons why this charge should be put into capable hands. The central tower of the cathedral — the weak point in cathedral construction from that day to this — had been giving the monks some anxiety, causing them sad distractions during the singing of the Divine offices, ominous cracks and fissures in the four supporting piers making themselves unpleasantly obvious. Alan at once closed the choir against the monks, screened off the western arch of the tower, and allotted the nave for the services of the church, doing, in fact, exactly what is now being done in the neighboring cathedral of Peterborough. Nor were the precautions in Alan's case taken a whit too soon, for on the night of February the 12th, 1322, the massive Norman tower, without farther warning, fell "with a sound as of an earthquake," shaking the town to its foundations, frightening the poor monks out of their five wits, startling the screaming wild-fowl from a thousand marshes, and breaking the heavy slumbers of the husbandman in many a neighboring grange. With the morning's light the extent of the calamity was all too evident. The tower in falling had carried with it the westernmost bays of the choir and the attached portions of both transepts, burying all in hopeless ruin. The terror and perplexity caused by the catastrophe is well expressed in the records of the time. But Alan was equal to the emergency, and we know how he set about his work of repair. After clearing the site he removed the bases of the four old piers which had given way down to the floor level, and there he left them; advancing the boundary of his new tower one bay into each arm of the cross, he secured eight points of support for his central structure in place of the original four. These eight piers he proceeded to underpin with concrete, and he satisfied himself by careful excavation of the sufficiency of his new foundations.

His next step was, with prudent forethought, to repair the marsh causeways by which his heavy loads of stone and his other materials were to travel, and he strengthened the bridges they would have to cross. One road, characteristically named Seggewick, was repaired at a total cost of 7½*d.*, a fact which throws a little light on the altered value of our modern currency. He next despatched trusty messengers to bargain for building materials. "Simon the glazier's boy" was sent to Barnack to bespeak stone, and after the manner of boys contrived to loiter out of his way, and lose himself. Oak, and lead, and other necessaries were duly bargained for, sheds were erected for the workmen, and Peter, the mason, and his brother, were put in charge of the stone-work. The story of the building of the octagonal dome and lantern is too trite for repetition. One of the happiest thoughts that ever entered the mind of man, it was carried out with surpassing skill. The result was not only supremely beautiful as a work of art, but it was, in every sense of the word, original. There is no evidence to show, all the evidence is against the presumption that its architect ever travelled beyond his convent bounds, or was acquainted, except, perhaps, by hearsay, with the domed churches of the East. Moreover, the system of construction used in them differs in principle from that employed at Ely, and Alan of Walsingham's masterly work remains to this day unique amongst the cathedrals of Europe.

His next work was to rebuild the western bays of the choir, and these, as re-designed and constructed by him, rank amongst the most beautiful of all the examples of our Middle-Pointed English Gothic.

In the year 1341, upon Prior Crauden's death, Alan was elected prior, and in 1344 his convent showed farther their sense of his worth by electing him with one voice to the then vacant bishopric. He ceased, as a matter of course, to hold the office of sacristan. The works so ably designed by him had been carried to a successful completion, only the internal decoration and fittings remaining to be done, and these could be carried out by subordinates with such general direction as Alan might still be able to exercise. But the election of the convent was set aside by the Pope in favor of one Thomas de l'Isle, a Dominican friar, who Micawber-like, was "on the spot" (Avignon) when the vacancy "turned up." The benefices were at this date filled by foreigners, and many and angry were the remonstrances on the subject. It was alleged that "the unlearned and unworthy were promoted rather than the poor and learned," and the high places in the Church were occupied by "suspicious persons who do not know the faces of their flocks, nor understand their language, neglecting the cure of souls, and shearing the sheep instead of feeding them." Alan was, on the next opportunity, a second time unanimously elected by the monks as their bishop; but again the choice of the convent was overruled, and Simon Langham, afterwards archbishop of Canterbury and cardinal, was consecrated in his stead.

In 1363, after fifty years of residence amongst them, his convent continued to hold him in undiminished esteem, but he was then approaching man's allotted limit of three score years and ten, and although the date of his death is not certainly known, it is believed to have taken place in the following year.

It is recorded of him that he was not only, as his works indeed testify, a consummate artist, a daring and successful engineer, but that he was a wise and capable administrator, and that notwithstanding the vast outlay which the works undertaken by him occasioned, the convent and its possessions grew and prospered under his rule. He was buried in the church he loved so well, and which his genius has done so much to adorn; and his epitaph, no longer extant, breathed a hope, in which we must all surely join, that he would be rewarded by a seat amongst the just in Heaven.

These few notes concerning him have been set down partly because his career embraces that half of the fourteenth century which exactly marks the culmination of our native architecture, an arc cut from the very zenith of that great artistic movement which, rising in this Western Europe in the twelfth century, declined and disappeared in the sixteenth; partly also, because this Alan of Walsingham combines in the range and catholicity of his attainments all the qualities of a typical architect.

His life has many lessons for us. His education was such as it befits each one of us to adopt. The training of the eye and hand in works of art proceeding with equal steps with the study of the physics and the natural laws which govern the universe. Then a practical acquaintance with building work,—probably working as an artificer, certainly in the capacity of a "clerk of works" before his final assumption of the chief control. We see that a great architect is necessarily a man of many gifts, and that his work offers a field for the exercise of the highest qualities. We see also that then as now the highest honor does not always wait upon merit; that as in our day so in his, "Princes foot it in the dust, while lacqueys to the saddle vaulted;" and finally, for our encouragement and consolation, that time sets all things right. The prelate who snatched the bishopric from Alan, — what is he now to us? His name would be forgotten but for his accidental connection with that of him whom he supplanted, while his defeated rival has taken his place forever with the great of all time.

Of the personality of this "*Flos operatorum*" we know but little; of his birth and parentage, nothing. We may reasonably conclude from his name that the county of Norfolk may claim him as one of her many illustrious sons, and of him she may well be proud.

His could have been no common nature to secure so early and retain so long the love and regard of all around him; and we cannot but chafe at the veil which hides from us all farther knowledge of the *man*. He has left us amongst the carvings of his cathedral portraits of his prior and of his bishop. Of himself, his work is his only monument. Apart from this, his history is almost a blank. The simple piety of his calling forbade the loud, vain-glorious self-assertion with which a later age has made us but too familiar.

But Fame (uncourted) guards his memory, and his name shall outlast the noblest of his works, — the crown and glory of the Isle of Ely.— *The Builder.*

MONTHLY CHRONICLE.

MAY 5. Explosion of a powder magazine on Priddy's Head, Portsmouth, England.

May 7. Disastrous fire at East St. Louis, Ill.

May 9. Hurricane in the Lehigh and Wyoming valleys, Pennsylvania.

May 10. Oil tanks at Communipaw, N. J., struck by lightning and burned. Six lives lost.

May 13. Cyclone in Missouri, Illinois, and Michigan.

May 19. Disastrous storm in Illinois and Wisconsin. Fifty-four killed, over two hundred wounded.

May 23. Fall of rear wall of G. M. Eddy & Co's., new building, New Bedford, Mass.

May 30. Panic on the Brooklyn Bridge. Twelve persons crushed to death, twenty-six injured.

MEASURING PAINTER'S WORK.

May 18, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Gentlemen,— I find it difficult to obtain the information elsewhere, and would ask the favor of a few hints from you on the following: —

In estimating the amount of paint (yds.) on the exterior of a building, where the painter contracted to do the work at a certain sum per square yard, what is the usual method of measurement,

and what allowances are usually made for work in cornices, about windows, etc., above the actual surface covered?

A reply will greatly oblige, and any suggestions or information on the subject will be appreciated by SUBSCRIBER.

[We can hardly spare the space to quote details of allowances in measuring painter's work. Plain cornices are usually reckoned according to the girt, but enriched ones may have a double or treble allowance. Window sashes are often measured as if solid. The custom varies in different localities, but "Subscriber" might do well to use Vogdes' *Architect's Pocket Companion* as a standard which will probably be satisfactory to all parties. — Eds. American Architect.]

WOODEN TRUSSES.

Louisville, Ky., May 17, 1883.

To the Editors of the American Architect: —

Dear Sirs, — Will you be kind enough to inform me if you are acquainted with a good work on wooden trusses, etc., together with calculations of their strains? I am desirous of procuring a good book of this kind, and would be obliged, if you would let me know where it can be procured and its cost.

Very truly yours, O. C. W.

[Trautwine's *Engineer's Pocket-Book* gives a very useful though condensed chapter on wooden trusses and joints. Price $5; to be had of any bookseller or ordered through W. T. Comstock, New York. Greene's *Graphical Analysis of Roof Trusses*, Wiley & Sons, New York, price $1.25, will give the principles of calculating strains by that method; and F. Schumann's *Formulas and Tables*, Van Nostrand, New York, $2.50, gives additional particulars. We should say that all three of these would be useful. — Eds. American Architect.]

ARCHITECTURAL IRON-WORK.

Indianapolis, May 4, 1883.

To the Editors of the American Architect: —

Dear Sirs, — Will you be so kind as to inform me which is the best book on architectural iron constructions, and oblige,

Yours respectfully, A Subscriber.

[*Architectural Iron-Work*, by W. J. Fryer, and Fairbairn, *On the Application of Cast and Wrought Iron for Building Purposes*, published by John Wiley & Sons, New York, Campin on *Iron Roofs*, published by D. Van Nostrand, New York. — Eds. American Architect.]

GEOMETRY.

Newark, N. J., March 15, 1883.

To the Editors of the American Architect: —

Sirs, — I would be very thankful to you for mentioning some books, with prices, about descriptive geometry, practical geometry, projectives. Very respectfully, Carl F. Kehmann.

[Church's *Descriptive Geometry*, A. S. Barnes & Co., New York and Chicago. Hill's *Geometry for Beginners*, Ginn, Heath & Co., New York and Boston, perhaps comes the nearest to deserving the name of a work on practical geometry of any we know. — Eds. American Architect.]

NOTES AND CLIPPINGS.

Branded Laborers. — The plan of numbering the Italian laborers on the West Shore road is said to have been found highly successful. Finding it impossible to keep track of the men by their names, the contractors concluded to number them. The number of each Italian is painted in plain figures on the seat of his pantaloons. Before beginning work in the morning and at noon and again at night, the men are formed in line, and the foreman passes in the rear of them and takes down each number, in order to ascertain who is present, as well as who is absent. The plan is beneficial in two ways — the men are easily recognized, and they are also kept from sitting down too much for fear of rubbing out the figures on the seats of their pantaloons. — *Exchange.*

Excavations at Athens. — The excavations of the Germans cover an irregular area of about ten acres. Just to the north of the excavations rises a steep, conical hill, once sacred to the god Kronos, from which a good, comprehensive view of the ruins can be obtained. Near the middle of the excavated area is the Temple of Zeus, with the remnants of its Doric columns, thirteen on each long side and six across the ends. North of that, not far from the foot of the hill of Kronos, is the Heraion, or Temple of Hera, one of the most ancient of the Olympic temples, and just east of the Heraion is the Metroon or temple of the mother of the gods. Along the northern edge of the excavated area, just at the foot of the hill of Kronos, are twelve treasure-houses, which were built by twelve Greek cities to hold their dedicatory offerings. From the northeast portion of the main excavated area an arched passage leads out into the Stadion, or race-course where the foot-races were run. Of the Hippodrome or horse-race course no remains have been found. South of the Temple of Zeus was the Bouleuterion or council-house, and in the northwest corner of the excavations are the foundations of the great gymnasium. All the excavated area is filled with the ruins of buildings, some of which have been identified with those mentioned by ancient writers, while in regard to others nothing is known. Though little more than the foundation of the various buildings is now in position, the fragments lying on the ground are sufficient to make an almost complete restoration of nearly all the buildings possible. The ground is literally covered with the drums and capitals of mighty columns, the great stones of massive walls and other architectural remains. The mass of brown ruins in the green, fertile valley is truly an imposing sight. What must it have been when those brown stones were brilliant with bright colors and gilding, when bronze and marble statues stood on every wall and pedestal, and the paths were crowded with the noblest of the Hellenic race! — *Correspondence of the Springfield Republican.*

Stained Floors. — The popularity of stained floors goes on increasing. Nowhere are they more appreciated than in sleeping-rooms, where sweetness and freshness are the main considerations. Just what is the best stain is a difficult question to decide. A writer in the London *Queen* is of opinion that permanganate of potash is the best. It is much used in the navy, and is very satisfactory in sitting-rooms and sleeping-rooms. As most people know, permanganate of potash not only stains, but purifies and disinfects, the rooms which are stained. The mode of procedure is this: Procure a good quality of permanganate of potash; dissolve about an ounce and a half of the crystals in a gallon of boiling water — this will make quite a dark stain — use a stick to stir up the mixture: then with a painter's flat brush lay on the stain, working the way of the grain of the wood quickly and boldly. A small brush is useful for corners and crevices, and a pair of heavy gloves should be worn while at work, as the permanganate stains very considerably. Salts of lemon or the lemon juice will, however, quickly remove the stains from the hands. When dry the staining can be repeated if the color is not dark enough, and then when perfectly dry the floor should be rubbed dry with an old duster, and linseed oil should be rubbed on freely with a piece of flannel, always applying it with the grain of the wood. Two or three layers of the oil are an improvement, and firmly set the stain. The floor is then ready to be polished with beeswax and turpentine. To prepare this, spread or cut up the wax into small pieces; put it in a gallipot, and pour sufficient spirits of turpentine over it just to cover it; set the pot in the oven or on the stove until the wax is thoroughly melted, then set it aside to get cold, when it should be of the consistency of pomatum. Put on the wax—not too much of it — with a piece of flannel, and polish with a polishing brush or a big silk duster. This mode of treating floors is quite the best and most wholesome for bedrooms, which should be stained all over, under the beds and everywhere. They can be kept very clean and bright by a daily rubbing with the duster and a weekly application of beeswax and turpentine. Turpentine is cleansing, and floors so treated do not require the weekly scrubbing which is so objectionable in cold and wet weather. Some people object that these floors require so much labor; but after they are once well polished, the labor is not more than scrubbing floors and washing oil-cloths, and they take away two-thirds of the terrors of house-cleaning. Those who like the more common varnished floors should stain the floors as above, but instead of the linseed oil a coat of size should be laid on. This can be obtained at the paint shops, and should be dissolved in boiling water to the consistency of thin gum, and then laid on with the brush evenly and with the grain. When the size is perfectly dry and hard it can be varnished with one or two coats of copal or egg-shell flat varnish. These floors require to be dusted daily, and to have a little linseed oil rubbed in occasionally. These require less care than a waxed floor, but when they get shabby they are not so easily renovated. A flannel bag in which the broom can be incased is the best floor duster and one most easily managed.

Wretchedness at Chios. — Having just returned from a visit to the island of Chios, of which I stopped at many of the remoter villages during my stay, I feel that something ought to be known about the present condition of places which excited so much commiseration at the time of the earthquake two years ago. The inhabitants of some of these villages at that time lost everything—houses, furniture, and friends—and, as will be remembered, subscriptions enough to keep them alive, say for a month or six weeks, came from all parts of Europe, and blocks of wooden huts were built to shelter them. In these they are still living unable through poverty to rebuild their houses or even to extricate the dead bodies of their friends from the ruins. Many of them are now dying themselves of famine, and the cause of all this present misery is the government of the country. Turkey promised them a year's relief from taxation after the catastrophe, only to put it on double this year; the peasants—in abject misery, some of them—refused to pay and many of these defaulters are now in prison. Turkish troops met the husbandmen in the fields on their way to work and threatened to take away their mules and implements if the taxes were not paid in full; and now the Government is about to erect forts near the principal villages to compel payment. In consequence the villagers have had to sell their goats, their mules and their only means of livelihood; they have had to borrow money at exorbitant rates of interest, and are now in many cases dying of poverty around the ruins of their old prosperity. Not only are the villages which were destroyed by the earthquake subject to this misery, but owing to the destruction of the capital, the decrease in population, and the general poverty, the other agricultural villages have not a sufficient market for their goods and no means of exporting them. The Turkish Government of course say that their own resources will not enable them to treat the Chiotes with the leniency they would desire; that however much they would wish to exempt a population which has suffered from such a terrible disaster from taxation for a brief period, yet they cannot afford it. But why should a helpless, peaceable population of 40,000 Christians, as against 5,000 Turks, be ground down and suffer a prolonged misery far worse than the earthquake because the Turks at Constantinople are in an impoverished condition? The neighboring islands and mainland complain, and perhaps with reason, that they have had no earthquake, no wholesale destruction of everything that belongs to them. If Chios were left to herself for some years she would recover, for her population is one of the most industrious and the most successful in merchandise in the whole of Greece. If she is oppressed for many years longer her population will cease to exist. Six months ago the only printing press in Chios which was not under Government inspection was closed by order of the Sultan. No books, not even for the schools, can now be printed. No one passes through the destroyed villages now the excitement of the earthquake has passed away. Consequently no one knows the abject misery of the place. — *Correspondence of the London Times.*

We hope to be able to announce in our issue for next Saturday the result of the competition for a "Mechanic's Cottage."

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

BUILDING PATENTS.

[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

277,952. CONSTRUCTION OF BUILDINGS, SHIPS, ETC. — C. Leo Staub, Pittsburgh, Pa.

278,307. FIRE-EXTINGUISHING APPARATUS. — Daniel Beck, Chicago, Ill.

278,310. FIRE-ESCAPE. — Charles F. Bierbach, Milwaukee, Wis.

278,311. STEAM SUPERHEATER. — William H. Burnet, Newark, N. J.

278,315. FIRE-EXTINGUISHING COMPOUND. — Gustave J. Crikelair, New York, N. Y.

278,323. AUTOMATIC SASH LIFTER AND LOCK. — Charles W. Elliott, Boston, Mass.

278,338. PLANING-MACHINE. — Richard B. Jones, Chicago, Ill.

278,348. SASH-BALANCE. — James W. Lyons, Des Moines, Iowa.

278,405. CARPENTER'S BEVEL. — James B. Cumming and Benjamin F. Van Amringe, Oakland, Cal.

278,439. SASH-HOLDER. — Samuel Lear, Pottsville, Pa.

278,445. HOIST OR ELEVATOR. — Thomas McDonough, Montclair, N. J.

278,481. MATERIAL FOR ROOFING PURPOSES. — Stephen M. Allen, Duxbury, Mass.

278,491. FIRE-PROOF BUILDING. — Wm. L. Black, St. Louis, Mo.

278,528. MEANS FOR CLOSING AND CONTROLLING HOISTWAY-COVERS. — Daniel Fraser, New York, N. Y.

278,539. AUGER. — Harvey Halligan and Harvey Rugg, Seymour, Conn.

278,5 3. WRENCH. — James Houlehan, Toledo, O.

278,558. PRIVY-SINK. — Thomas Kelly, Memphis, Tenn.

278,585. SHUTTER-WORKER. — William A. C. Murphy and John T. Johnston, Springfield, Mo.

278,595. SAFETY-DOG FOR ELEVATORS. — Geo. Pilson, Yonkers, N. Y.

278,597. SELF-CLOSING FAUCET. — Anton Prier, Charles Doherty, and Pierce E. Everett, Kansas City, Mo.

278,603. PILE-DRIVER. — John Roy, New Orleans, La.

278,636. STEAM AND HOT-WATER HEATING-APPARATUS. — Frederic Tudor, Boston, Mass.

278,651. FIRE-ESCAPE. — Abbott L. Aldrich, Boston, Mass.

278,654. AUTOMATIC FIRE-EXTINGUISHER. — Chas. E. Buell, New Haven, Conn.

278,655. FIRE-ESCAPE. — Whitman Chase, North Dighton, Mass.

278,656. COPING FOR WALLS. — Elijah C. Clark, Cannelton, Ind.

278,664. PAINT FOR ROOFING AND OTHER PURPOSES. — Frank Jones, Middlebury, Ind.

278,671. ARTIFICIAL STONE. — James H. Thorp, Baltimore, Md.

SUMMARY OF THE WEEK.

Baltimore.

HOSPITAL. — Mr. Chas. L. Carson, architect, is preparing drawings for a three-st'y building, 55′ x 80′, for the Nursery and Child's Hospital to be erected cor. Schroeder and Franklin Sts., of brick and stone, and to cost $25,000.

BUILDING PERMITS. — Since our last report thirty-nine permits have been granted, the more important of which are the following:

E. J. Muller, 8 three-st'y brick buildings, s s Dolphin St., between Myrtle Ave. and Shields Alley.

A. A. Sauner, three-st'y brick building, n s Jackson Sq. Ave., between Durham and Wolfe Sts.

W. R. Saumenig, three-st'y brick stable and carpenter-shop in rear, s s Franklin St., between Pine and Chatsworth Sts.

E. Langhammer, three-st'y brick building, w s Patterson Park Ave., between Pratt and Gough Sts.

J. A. Chelton, three-st'y brick building, w s Patterson Park Ave., between Pratt and Gough Sts.

S. E. Eichelberger, 3 three-st'y brick buildings, s s Fayette St., between Pine and Fremont Sts.

A. D. Michael, 6 three-st'y brick buildings, e s Culvert St., between Eager and Read Sts.

Keyser Bros. & Co., three-st'y brick building and basement, s s German St., between South and Calvert Sts.

B. & O. R. R. Co., one-st'y brick building, 57′ x 175′, at Mt. Clare Station.

Alonzo Lilly, Jr., 6 three-st'y brick buildings, w s McCollough St., n w cor. Presstman St.; and 2 three-st'y brick buildings, n s Presstman St., between McCollough St. and Stoddard Alley.

Chas. Milske, three-st'y brick building, e s Patterson Park Ave., s of Orleans St.

Henry Koesser, three-st'y brick building, s s Haw St., between Fremont and Penn Sts.

Henry Hartman, three-st'y brick building, s s Baltimore St., between Republican and Carey Sts.

Boston.

MONTHLY REPORT. — During the month of May, 31 permits for brick and 87 permits for wooden buildings were issued from the office of Inspector of Buildings, Boston.

BUILDING PERMITS. — *Brick.* — *Portland St., Nos.* 158-164, Ward 7, for Sylvester Bowman, mechanical, 47′ and 51′ x 60′, five-st'y flat; Webster & Dixon, builders.

Otis Pl., No. 12, Ward 9, for Glendower Evans, dwell., 20′ x 48′, three-st'y mansard; J. J. Whidden & Co., builders.

Court St., Nos. 27 *and* 29, cor. Franklin Ave., Ward 7, for Estate of J. S. Fay, mercantile, 22′ and 31′ x 85′ 6″, six-st'y flat; Neal & Preble, builders.

Wood. — Unnamed St., near Centre St., Ward 23, for Mrs. Caroline Lewis, dwell., 30′ x 31′, two-st'y pitch; Holbrook & Harlow, builders.

Unnamed St., near Centre St., Ward 23, for Mrs. Caroline Lewis, dwell., 30′ x 32′, two-st'y pitch; Holbrook & Harlow, builders.

Lexington St., Nos. 221-225, for Lewis Burnham, 2 dwells., 21′6″ x 34′, and 17′ x 23′, two-st'y mansard.

Pierce Ave., opposite Plain St., Ward 24, for Thos. Brady, dwell., 26′ x 36′, two-st'y pitch; H. P. Oakman, builder.

Perrin St., cor. Waverly St., Ward 21, for Francis N. White, dwell., 24′ 10″ and 53′ x 63′ 2″, two-st'y pitch; Amos D. Gould, builder.

Granite St., nearly opposite Mt. Washington Ave., Ward 13, for J. O. Whitney & Co., storage, 62′ x 90′, one-st'y flat; M. W. Tate, builder.

Dorset St., rear, near Dorchester Ave., Ward 15, for Henry H. Hawley, stable, 20′ x 24′, one-st'y pitch; Jerome Keene, builder.

Union Ave., rear, near Washington St., Ward 23, for Michael Maloney, stable, 16′ x 22′, one-st'y pitch.

Greenwood Ave., Ward 23, for Joseph Johnson, wagon-shed, 17′ x 35′, one-st'y flat; John D. Wester, builder.

Lexington St., No. 235, Ward 1, for Howard Woodside, dwell., 21′ x 21′ and 16′ x 24′, one-st'y mansard; Wilbur Goodwin, builder.

Brooklyn.

BUILDING PERMITS. — *North Seventh St.*, s s, 150′ e Fifth St., three-st'y brick factory, gravel roof; cost, $5,300; owner and builder, J. B. Chamberlain; architect, F. Weber.

Beaver St., No. 8, n s, 80′ e Flushing Ave., one-st'y frame store and dwell., tin roof; cost, $4,000; owner, Benj. Tuckers, on premises; architect, T. Engelhardt.

Herkimer St., n e cor. Saratoga Ave., 6 two-st'y frame dwells., gravel roofs; cost, each, $2,300; owner, G. H. Bishop, New York; architect, G. H. Chamberlain.

Lafayette Ave., s s, 150′ e Grand Ave., 4 three-st'y brick dwells., tin roofs; cost, each, $7,500; owner, H. G. Cootey, 108 Park Pl.; architect, P. I. Cootey; builders, J. Carlin and B. Brown.

Ten Eyck St., No. 210, s s, 150′ e Humboldt St., three-st'y frame store and tenement, tin roof; cost, $4,000; owner and builder, Peter Kaiser, on premises; architect, T. Engelhardt.

Water St., s s, about 100′ e Main St., 2 five-st'y brick factories, tile and slate roofs; cost, total, $35,000; owners, Campbell & Thayer, 89 Maiden Lane, New York; architects, Post & McCord; builder, J. Guilfoyle.

Stagg St., s s, 125′ e Bushwick Ave., three-st'y frame double tenement, gravel roof; cost, $5,000; owner, William Dresh, Scholes St.; architect, J. Platte; builders, —— Buckheid and Ochs & Son.

Prospect Pl., n s, 37′ e Vanderbilt Ave., 4 three-st'y brick dwells., gravel roofs; cost, each, $5,000; owner, W. H. Hinman, New York; architect, T. G. Thomas; builder, —— Tremble.

Kosciusko St., No. 448, two-st'y frame double tenement, tin roof; cost, $3,000; owner, —— Reynolds, on premises; builder, J. Rueger.

Hancock St., n s, 180′ e Nostrand Ave., 2 three-st'y brownstone front dwells.; also, *Hancock St.*, n s, 340 e Nostrand Ave., 2 three-st'y brownstone front dwells., tin roofs; cost, each, $9,000; owner, Geo. Phillips, 177 Hancock St.; architect, J. G. Prague.

Dikeman St., s s, 62′ w Van Brunt St., three-st'y brick double tenement, tin roof; cost, $7,000; owner, Christian Hoehl, Van Brunt St., cor. Dikeman St.; architect, T. Liebbrand; builders, P. Kelly & Son and Gilrson & Liebbrand.

Leonard St., w s, 78′ n Nassau Ave., three-st'y frame tenement, tin roof; cost, $4,000; owner, Jno. Jones, 108 Eckford St.; architect, F. Weber; builders, G. J. Roberts and A. H. Hulse.

Ralph Ave., n e cor. Marion St., three-st'y frame store and tenement, tin roof; cost, $4,000; owner, Philip Stehler, Marion St., near Ralph Ave.; builder, J. Pirring.

North Eighth St., n s, 150′ e Third St., four-st'y brick double tenement, tin roof; cost, $8,000; owner, Thos. Monachan, 141 North Eighth St.; architect, T. F. Houghton; builders, M. Smith and J. Doig, Jr.

Clinton St., n w cor. President St., 8 three-st'y brownstone front dwells., six on Clinton St. and two on President St., tin roofs; cost, each, $6,500; owner, Julius Wadsworth; architect and builder, Geo. Lowden.

Kane Pl., e s, 75′ s Herkimer St., three-st'y frame tenement, tin roof; cost, $3,000; owner, Margaret Karrer, 1308 Fulton St.; builder, J. Dhuy.

Vernon Ave., s s, 133′ e Marcy Ave., 6 two-and-a-half-st'y brownstone front dwells., tin roofs; cost, each, $5,000; owner, architect and builder, Patrick Sheridan, 775 Myrtle Ave.; carpenter, Wm. Colsted.

Van Buren St., s s, 150′ w Sumner Ave., 7 two-st'y brownstone front dwells., tin roofs; cost, each, $4,000; owner, Patrick Concannon; architect, I. D. Reynolds.

Chicago.

APARTMENT-HOUSE. — Bauer & Hill, architects, have plans ready for an apartment-house, cor. of Groveland Park Ave. and Twenty-eighth St., three stories and cellar, pressed-brick, with stone finish; Ex-Alderman Jacob Rosenberger, owner.

CHURCH. — The Baptist church to be built on Fullerton Avenue, near Lincoln Park, will be of pressed-brick, with cut-stone finish; it will cost $.5,000. J. C. Cochran, architect.

CLUB-HOUSE. — Work on the Union Club-House is to be pushed as rapidly as possible, and the club expects to occupy it by October 1; cost will be about $100,000.

FLATS. — Silsbee & Kent, architects, have prepared plans for Mr. B. F. Norris for 2 three-st'y flats, one to be built on Oak St., and the other on Ogden Ave. They are to be of pressed-brick, with brownstone and terra-cotta finish, in Moorish style of architecture, and will cost $12,000 each.

HOUSES. — Silsbee & Kent have furnished plans to Mr. J. V. Weaver for a house on Illinois St., to be three stories and basement, of pressed-brick, and will cost $7,000.

Mr. J. C. Cochran, architect, has plans ready for frame house for T. W. Wilmarth, at Ravenswood.

By same architect, 2 brick houses, cor. of Monroe St. and Winchester Ave., for Mr. I. W. Litchfield; cost, $20,000.

INSURANCE OFFICE BUILDING. — Work has been begun on Jackson St., w of Lasalle St., demolishing the old building, for the purpose of erecting on the lot a new building for the Royal Insurance Company, of Liverpool and London. The building will be ten stories high on both streets. Four stories of the Jackson-street front will be of red granite, and red dressed sandstone for the remainder. Quincy-street front will be granite three stories, and red pressed-brick, terra-cotta finish, for the other seven stories. Steel floor-beams and hollow-tile arches throughout the building. To be absolutely fire-proof, and completed in one year; cost, $500,000; W. W. Boyington, architect.

STORES. — Mr. W. W. Boyington will build for David Coey, cor. of Eighteenth St. and Wabash Ave., three-st'y brick structure, nine stores, and the upper stories will contain eighteen flats; cost, $70,000.

BUILDING PERMITS. — W. Bucktamel, three-st'y brick dwell., 22′ x 60′, 178 Rumsey St.; cost, $3,000.

Wm. Dressler, three-st'y brick dwell., 22′ x 50′, 3516 Wentworth Ave.; cost, $3,500.

Busse & Brown, 2 two-st'y brick dwells., 44′ x 50′, 353-355 Marshfield Ave.; cost, $5,000.

J. C. McCulloun, six-st'y basement brick warehouse, 50′ x 80′, 238-240 Market St.; cost, $30,000.

M. Harrigan, 2 two-st'y brick dwells., each 22′ x 46′, 149-151 Paulina St.; cost, $5,400.

Peter Becker, three-st'y basement and attic brick dwell. and store, 26′ x 80′, 475 South Halsted St.; cost, $7,000.

J. McLaren, two-st'y basement brick dwell., 40′ x 60′, 339-341 Ashland Ave.; cost, $10,000.

K. Eishengreen, 2 two st'y brick dwells., 48′ x 64′, 736-740 Congress St.; cost, $10,000.

Campbell Bros., 6 two-st'y brick dwells., 36′ x 125′, 382-392 Leavitt St.; cost, $15,000.

David Coey, three-st'y basement brick stores and flats, 70′ x 166′, Wabash St., cor. Eighteenth St.; cost, $40,000.

John Fitzgibbon, two-st'y brick store and dwell., 25′ x 70′, 721 Elston Ave.; cost, $4,000.

J. Webb, 3 two-st'y brick flats, 40′ x 61′, 310 to 314 South Leavitt St.; cost, $10,000.

J. Cohen, 3 three-st'y brick dwells., 60′ x 74′, 46-50 Wisconsin St.; cost, $25,000.

Jacob Roeder, two-st'y brick dwell., 22′ x 56′, 394 Webster St.; cost, $5,000.

Geo. Hewitt, two-st'y brick flats, 20′ x 51′, 59 Warren Ave.; cost, $4,700.

H. J. Berry, three-st'y brick factory, 44′ x 80′, Indiana St., cor. Market St.; cost, $10,000.

F. Kuratkewsky, two-st'y brick dwell., 21′ x 46′, 173 Dayton St.; cost, $3,000.

Aug. Kershoff, two-st'y brick dwell., 21′ x 65′, 709 Halsted St.; cost, $4,000.

M. Dunn, two-st'y brick dwell., 22′ x 49′, 398 Loomis St.; cost, $3,300.

Chas. Waxon, two-st'y brick dwell., 21′ x 63′, 156 Centre Ave.; cost, $3,500.

L. S. Anderson, two-st'y basement brick dwell., 21′ x 49′, 94 Lincoln Ave.; cost, $3,400.

Allen B. Wrisley, five-st'y brick factory, 50′ x 100′, 479-491 Fifth Ave.; cost, $15,000.

R. Truman, 5 two-st'y brick dwells., 46′ x 100′, 2900-2908 Vernon Ave.; cost, $12,500.

R. Rahn, two-st'y basement brick dwell., 21′ x 48′, 3830 Dearborn St.; cost, $3,000.

John Rawle, two-st'y brick dwell., 21′ x 52′, 3630 Dearborn St.; cost, $4,000.

M. Pelton, three-st'y brick building, 24′ x 100′, 490 Milwaukee St.; cost, $9,000.

H. Mueker, two-st'y brick dwell. and stores, 22′ x 45′, 475 West Twelfth St.; cost, $4,000.

J. C. Waltz, three-st'y basement and attic brick flats, 45′ x 57′, 379 Chestnut St.; cost, $12,000.

Mrs. E. Fabion, 4 two-st'y basement and attic brick dwells., 50′ x 66′, Chestnut St., cor. Wells St.; cost, $15,000.

A. C. Lanston, three st'y basement brick stores and flats, 50, x 80′, Milwaukee Ave.; cost, $12,000.

John Livingston, three-st'y basement brick store and dwell., 25′ x 60′, Milwaukee St., near Wood St.; cost, $6,000.

Peter Mehler, two-st'y basement brick flats, 46′ x 54′, 897-899 South Ashland Ave.; cost, $8,000.

Dr. S. Sawyer, three-st'y basement brick store and flats, 66′ x 68′, 193-197 North Ave.; cost, $16,000.

Commercial Safety Company, five st'y basement and attic brick office-building, 90′ x 131′, cor. Dearborn and Monroe Sts.; cost, $200,000.

J. L. Hathway, brick shelter-shed, 160′ x 289′, Kingsberry St., cor. Indiana St.; cost, $10,000.

E. W. Morrison, three st'y brick flats, 56′ x 75′, 12-14 Elizabeth St.; cost, $18,000.

Cincinnati.

HOUSE. — C. F. Loudon, Esq., is to build a stone house on Walnut Hills, from plans prepared by James W. McLaughlin; cost, $20,000.

BUILDING PERMITS. — F. A. Heleman, three-st'y brick building, cor. Eighth and Carr Sts.; cost, $8,000.

Fred. Otte, three-st'y brick dwell., Western Ave., near Dayton St.; cost, $4,000.

J. N. Plakes, two-st'y brick building, State Ave., near Eighth St.; cost, $3,500.

Echert Bros., four-st'y brick store, Pearl St., near Broadway; cost, $6,500.

Anton Lambar, three-st'y brick building, Dandridge St.; cost, $5,500.

Henry Hockemeyer, three st'y brick building, cor. of Harriet and Espanola Sts.; cost, $3,500.

Amelia Weinhardt, two-st'y brick building, Loth St., near Mulberry St.; cost, $3,000.

C. Weibel, two-st'y brick building, McMillan St., near Vine St.; cost, $4,000.

M. M. White, two-st'y brick building, Sixth St., between Race and Elm Sts.; cost, $4,000.

S. Schomaker, three-st'y brick building, 565 Walnut St.; cost, $3,600.

A. Segal, 2 two-st'y brick buildings, Court St., between Baymiller and Linn Sts.; cost, $8,000.

A. Segal, two-st'y brick dwell., Richmond St.; cost, $4,000.

Fritch & Blettner, three-st'y brick building, n w cor. McMicken Ave. and Henry St.; cost, $12,000.

Wm. Miller, two-st'y brick dwell., Clifton Ave.; cost, $3,500.

St. Paul P. E. Church, cor. Seventh and Plum Sts.; cost, $5,000.

New York.

CHAPEL.—For the South Reformed Church, a chapel, with class-rooms below, is to be built on Twenty-eighth St., between Eighth and Ninth Aves. It is to be of brick, and open-timbered roof; Mr. H. Edwards-Ficken is the architect.

FACTORY.—For the Scoville Manufacturing Company a seven-st'y building, about 25′ x 100′, is to be built on Broome St., near Crosby St., from designs of Messrs. D. & J. Jardine. It will be built of brick, with terra-cotta and stone finish, will be partly fireproof, and cost about $50,000.

INDUSTRIAL SCHOOL.—For the Children's Aid Society a building, 44′ x 85′, is to be built on the cor. of Seventh Ave. and Thirty-second St., at a cost of about $40,000. It is to be five stories high, and is the gift of Mr. Astor.

STABLE.—For Messrs. Birdsall & Johnson a six-st'y stable, with basement, to accommodate one hundred and fifty horses, is to be built at Nos. 159 and 161 Crosby St., from designs of Messrs. Berger & Baylies, at a cost of about $30,000.

BUILDING PERMITS.—*One Hundred and Eleventh St.*, s s, 275′ w Second Ave., four-st'y brick tenement and store, tin roof; cost, $14,000; owner, Josephine H. Jenny, 68 East One Hundred and Tenth St.; architect, A. Spence.

Seventy-seventh St., s s, 100′ w Second Ave., three-st'y brick stable, tin roof; cost, $7,000; owner, A. H. Jonas, 71 Attorney St.; architect, J. C. Burne.

One Hundred and Twenty-second St., s s, 100′ e Seventh Ave., 8 four-st'y brownstone front dwells., tin roofs; cost, each, $18,000; owner, A. Alonzo Teets, 208 West One Hundred and Twenty-fifth St.; architects, Cleverdon & Putzel.

One Hundred and Twenty-eighth St., n s, 100′ e Fifth Ave., 4 three-st'y brownstone front dwells., tin roofs; cost, each, $15,000; owner, Isaac E. Wright, 1983 Madison Ave.; architects, Cleverdon & Putzel.

One Hundred and Thirty-seventh St., s s, 430′ w Sixth Ave., three-st'y brick dwell., tin roof; cost, $7,500; owner, Wm. J. Chaloner, 227 West One Hundred and Thirty-second St.; architect, F. A. Peterson; builders, Jas. B. Smith & Prodgers.

Morris Ave., s e cor. West Prospect Ave., 4 two-and-a-half-st'y frame dwells., tin and slate roofs; cost, $3,000; owner, John Litter, 351 Fourth Ave.; architect and carpenter, J. M. Dubois; masons, Lennon & Son.

One Hundred and Fifteenth St., n s, 150′ w First Ave., 4 five-st'y brick tenements and stores, tin roofs; cost, each, $14,000; owner, Margaret Schmitt, 428 West One Hundred and Twenty-second St.; architect, Geo. M. Walgrove; builder, Frank Schmitt.

Eldridge St., Nos. 11 and 13, 2 five-st'y brick tenements and stores, tin roofs; cost, each, $17,000; owner, Ernst Von Au, 149 Adam St., Brooklyn; architect, Jobst Hoffman.

Fifth Ave., e s, 57′ 2½″ n Seventy-fifth St., four-st'y brick dwell., stone front, slate roof; cost, $50,000; owner, Alfred M. Hoyt, 40 West Thirty-seventh St.; architects, McKim, Mead & White; builder, John J. Tucker.

Jacob St., Nos. 19, 21 and 23, and No. 59 Frankfort St., six-st'y brick store, tin roof; cost, $35,000; owner, G. B. Horton, 93 Gold St.; architect, Wm. B. Tubby.

Rivington St., No. 17, six-st'y brick flat and store, tin roof; cost, $25,000; owner, R. Heiber Breintnall, Newark, N. J.; architect, Thos. Cressey.

Sixth Ave., s w cor. One Hundred and Twenty-eighth St., 6 four-st'y brick dwells., tin roofs; cost, each, $10,000; owner, Estate of Sylvester Brush, Lewis S. Brush, exr., 40 West Seventeenth St.; architect, H. S. Hardenbergh; builder, Samuel Lowden.

One Hundred and Twenty-eighth St., s s, 75′ w Sixth Ave., 3 four-st'y brick double houses, tin roofs; cost, each, $10,000; owner, architect and builder, same as last.

West Forty-third St., Nos. 313 to 319, six-st'y brick carriage-factory, tin roof; cost, $50,000; owners, Healey, Williams & Co., 1478 Broadway; architect, John Sexton.

Fifty-eighth St., s s, 100′ e Fifth Ave., 2 six-st'y brick flats, tin roofs; cost, each, $10,000; owner, Mary Mason Jones, 1 East Fifty-seventh St.; architect, Robert Mook; builders, John J. Tucker and John C. Hamilton.

Hester St., n e cor. Clinton St., five-st'y brick tenement and store, tin roof; cost, $20,000; owners, Moore & Wilson, 373 East Seventy-ninth St.; architects, Thom & Wilson.

West Sixteenth St., Nos. 136 to 142, 2 five-st'y brick flats, tin roofs; cost, each, $30,000; owners and architects, same as last.

Twelfth St., No. 21, n s, four-st'y brick stable, gravel roof; cost, $14,000; owner, Edward Smith, 154 Greenwich St.; carpenter, J. G. McMurray.

Twenty-first St., s s, 350′ w Tenth Ave., 2 four-st'y brick tenements, tin roofs; cost, each, $12,000; lessee, Clinton Sutphen, Mount Vernon, N. Y.; architect, Geo. B. Pelham.

Washington St., n e cor. Clarkson St., five-st'y brick store, tin roof; cost, $15,000; lessee, David Milleman, 361 West Fifty-fifth St.; architect, J. M. Forster.

Centre St., s e cor. Walker St., seven-st'y brick store, metal roof; cost, $45,000; owner, P. R. Weiler, 693 Madison Ave.; architect, J. B. Snook; builder, not selected.

West Thirty-sixth St., No. 521, four-st'y brick dwell., tin roof; cost, $5,051; owner, Henry T. Nichols, 38 Beaver St.; architect, M. Thomas; builders, Morris & Selover.

Second Ave., n w cor. Seventy-first St., 4 five-st'y brownstone front tenements and stores, tin roofs; cost, three, each $12,000, and one $15,000; owner, Fred. J. Hefner, Jersey City, N. J.; architect, Jos. M. Dunn; mason, Frank A. Seitz.

Seventy-second St., n s, 113′ w First Ave., 5 four-st'y brownstone front tenements, tin roofs; cost, each, $16,000; owners, Frame & McGirr, 114 and 116 East Seventieth St.; architect, G. A. Schellinger.

One Hundred and Twenty-seventh St., s s, 105′ e Third Ave., 3 five-st'y brick tenements and stores, tin roofs; cost, each, $18,000; owner, John Keyes, 65 East One Hundred and Twenty-seventh St.; architect, Thos. E. S. Dwyer; builders, McManus & Burney and Thos. E. S. Dwyer.

Sixty-first St., n s, 149′ 6″ e Second Ave., 2 five-st'y brick tenements, tin roofs, cost, each, $12,000; owner, Margaret C. Smith, 1704 First Ave.; architect, A. B. Ogden.

Forty-seventh St., n s, 300′ w Tenth Ave., two-st'y brick dwell. and store, tin roof; cost, $3,500; owner, Henry Reinmuller, 659 Tenth Ave.; architect, C. F. Kidder, jr.; builder, not selected.

Sixty-second St., n s, 81′ 5″ e First Ave., five-st'y brick factory, tin roof; cost, $24,000; owner, Sarah E. Hinman, 237 West One Hundred and Thirty-first St.; architect, J. H. Valentine; builder, S. Hinman.

Twenty-first St., s s, 75′ w Eleventh Ave., one and part two-st'y brick factory, tin and corrugated-iron roof; cost, $5,000; lessee, Wm. Collins, Bogert St.; architect, Wm. Kuhles.

One Hundred and Sixth St., n s, 100′ w First Ave., 3 four-st'y brick tenements and stores, tin roofs; cost, each, $13,000; owner, Wilhelmine Juch, 351 East One Hundred and Fourth St.; architect, Arthur Arctander.

First Ave., e s, 55′ s One Hundred and Twenty-fourth St., 3 five-st'y brick tenements and stores, tin roofs; cost, each, $16,000; owner and builder, Joseph E. McCormack, No. 1 Lincoln Pl.; architect, M. V. B. Ferdon.

One Hundred and Twenty-fourth St., s s, 100′ e First Ave., 6 five-st'y brick tenements, tin roofs; cost, each, $16,000; owner, builder and architect, same as last.

ALTERATIONS.—*Fulton St., Nos. 206 and 208*, raise two stories; cost, $10,700; owner, Martin B. Brown, 770 Lexington Ave.; builder, Henry Wallace.

Twenty-third St., s e cor. Sixth Ave., Booth's Theatre, alter building externally and internally for business purposes; cost, $200,000; owner, James D. Fish, 78 Wall St.; architect, Ed. H. Kendall; builders, Warren A. Conover and A. G. Bogert & Bros.

East Houston St., Nos. 96 and 98, front altered and internal alterations; cost, $15,000; owner, F. Krutina, 854 Lexington Ave.; architect, Julius Kastner.

Eleventh Ave., n w cor. Twentieth St., four-st'y brick extension and one-st'y extension; cost, $4,000; owner, Herman Meyer, on premises; architect, Julius Boekell.

King St., Nos. 37 and 39, rear, build brick partition wall, rebuild front wall; cost, $4,000; owner, Wm. Cleary, Fifty-third St., cor. Sixth Ave.; architect, Henry J. Dudley.

West Fifty-third St., No. 57, two-st'y and basement extension; cost, $3,500; owner, John M. Toucey, on premises; architect, J. C. Snook; builder not selected.

West Thirty-ninth St., No. 622, two-st'y brick extension; cost, $3,000; owner, James P. Robertson, 431 West Forty-seventh St.; architects and carpenters, Axford & Cramer; mason, E. O. Perrine.

Broadway, e s, between Tenth and Twelfth Sts., Grace Church, brick, marble and iron spire; cost, $60,000; owners, rector, church warden and vestrymen of Grace Church; architects, Renwick, Aspinwall & Russell; builders, Jno. J. Tucker and Vermont Marble Co.

West Fifty-third St., No. 63, one-st'y brick extension; cost, $5,000; owner, Sarah L. Heuvelman, on premises; architect, Thos. Stent.

Fourth Ave., n w cor. Sixty-third St., four-st'y brick extension; cost, $5,000; owner, Emanuel Arnstein, on premises; architect, F. S. Barus; builder not selected.

Twenty-third St., s e cor. Lexington Ave., New York College, one-st'y extension; cost, $20,000; owner, City of New York, Stephen A. Walker, Chairman Board of Trustees, 8 East Thirtieth St.; architect, W. Wheeler Smith; builder, Richard Deeves.

Broad St., Nos. 11 to 21, and Exchange Pl., Nos. 53 and 55, ten-st'y brick extension; cost, $100,000; owner, Darius O. Mills, 634 Fifth Ave.; architect, G. B. Post; builder, D. H. King, Jr.

Front St., No. 152, front and rear walls taken down and rebuilt, new flat roof, internal alterations, etc.; cost, $5,000; owner, John A. Casey, 142 Maiden Lane; architect, James H. Giles.

Ninth Ave., s w cor. One Hundred and Eighth St., new chimney-stack; cost, $12,000; lessee, Bernheimer & Schmid, on premises; architects, Lederle & Co.

Philadelphia.

FACTORY.—Messrs. Campbell & Rickards propose to erect, at n w cor. Huntingdon and Pope Sts., a six-st'y manufacturing building, 38′ x 87′ 10″.

WAGES.—Plasterers are agitating the question of fifty cents per day advance.

BUILDING PERMITS.—*Green St.*, cor. Queen St., three-st'y dwell., 18′ x 44′; Wm. Keyser, owner.

Edgemont St., e s, n Anthracite St., two-st'y dwell., 15′ x 40′; Geo. McCouch, contractor.

Wolf St., n s, w Sixth St., 7 two-st'y dwells., 16′ x 30′; W. J. Smith, contractor.

Little Wayne st. Nos. 4923 and 4925, 2 three-st'y dwells., 15′ x 30′; Valentine Stokes, owner.

Mutter St., e s, s Somerset St., three-st'y dry-house, 19′ x 50′; Joseph Hanson, owner.

Terrace St., bet. Cedar St. and Shur's Lane, 2 two-st'y dwells., 15′ x 30′; Jno. Harper, owner.

Fleming St., s s, bet. Cotton and Grape Sts., 3 two-st'y dwells., 13′ x 44′; Henry Gray, contractor.

Haines St., s e s, bet. Hancock St., and Germantown Ave., two-st'y store and dwell., 18′ x 34′; Geo. Hearst, contractor.

Poplar St., n w cor. Carlisle St., 2 three-st'y dwells., 20′ x 61′; Jos. Stuckey, contractor.

Reese St., e s, n Cumberland St., two-st'y dwell., 13′ x 40′; Wm. Tecklenberg, contractor.

Scott St., No. 1938, two-st'y dwell., 16′ x 26′; Jno. Spoerl, contractor.

Otis St., s s, e Memphis St., and n s Moore St., 10 three-st'y dwells., 16′ x 40′; Chas. Martin, owner.

South Eighth St., No. 1704, two-st'y dwell., 16′ x 42′; H. C. Mintzer, owner.

Caernarvon St., w s, bet. Dickinson and Tasker Sts., two-st'y dwell., 14′ x 28′; Jas. Dempsey, owner.

Brown St., s s, bet. Twenty-seventh and Taney Sts., 12 three-st'y dwells., 15′ x 52′; Jacob Ridgeway.

Stella Ave., n s, n Emerald St., two-st'y dwell., 16′ x 45′; C. G. Harris.

Mifflin St., s s, e Ridge Ave., three-st'y dwell., 15′ x 43′; Chas. Bartle, contractor.

Mascher St., s w cor. Venango St., two-st'y dwell., 14′ x 30′; Job Rutty, contractor.

Greene St., No. 1814, two-st'y stable, 32′ x 36′; Nutz & Worthington, contractors.

Warnock St., w s, s Columbia Ave., 2 two-st'y dwells., 17′ x 38′; C. Bachle, contractor.

Nineteenth St., e s, n Reed St., one-st'y chapel, 25′ x 48′; Kramer & Huston, contractors.

Paul St., s w cor. Raun St., police station, 40′ x 103′; Thos. A. Lynch, contractors.

Fairhill St., w s, s Huntington St., two-st'y dwell., 17′ x 42′; F. Hefling, contractor.

Ashmead St., n s, e Mercer St., two-st'y dwell., 15′ x 38′; Wm. Garvin, contractor.

Thirty-fourth St., s e cor. Race St., three-st'y dwell., 28′ x 44′; Wm. Lamb, contractor.

Davis St., n e cor. Germantown Ave., third-st'y addition to front and second-st'y addition to back building, 18′ x 70′; J. G. Henvis, owner.

Second St., e s, n Norris St., 2 three-st'y stores and dwells., 18′ x 48′; Wm. Bartholomew, contractor.

Palethorp St., w s, n Norris St., 2 two-st'y dwells., 18′ x 36′; Wm. Bartholomew, contractor.

Spring Garden St., n s, e Seventeenth St., schoolhouse, 45′ x 100′; P. H. Somerset, contractor.

Bodine St., w s, s Dauphin St., second and third-st'y add. to factory, 32′ x 64′; Jas. Cooney.

Vine St., No. 212, two-st'y back building, 20′ x 40′; H. Nichols, owner.

Tulip St., w s, n Palmer St., four-st'y factory, 30′ x 77′; Jos. Young, contractor.

Franklin St. Nos. 1428, 1430, 1432 and 1434, 4 three-st'y dwells., 17′ x 70′; Daniel Buck, owner.

Kitchen's Lane, e Ridge Ave., 2 two-st'y dwells., Jacob Ketteuring, owner.

Fifth St., e s, s Susquehanna Ave., three-st'y dwell., 17′ x 46′; C. H. W. Keyser, contractor.

Dickinson St., No. 219, one-st'y carriage-house, 32′ x 63′; Benj. Hunt.

Twenty-first St., s w cor. Bainbridge St., two-st'y stable, 18′ x 22′; J. & S. Gardner, owners.

Frankford Road, No. 3412, three-st'y dwell., 16′ x 30′; G. W. Jackson, owner.

Venango St., s s, w Twenty-second St., 4 three-st'y dwells., 17′ x 50′; Jno. Duncan, contractor.

Palethorp St., e s, n Dauphin St., 3 two-st'y dwells., 12′ x 28′; Wm. F. Shaw, owner.

Crown St., s e cor. Vine St., two-st'y factory, 48′ x 66′; C. Bachle, contractor.

Sixth St., e s, bet. Wharton and Reed Sts., 12 three-st'y dwells., 16′ x 48′; A. M. Green, owner.

Hanley St., e s, bet. Wharton and Reed Sts., 4 two-st'y dwells., 15′ x 30′; A. M. Green, owner.

Hanley St., w s, bet. Wharton and Reed Sts., 8 two-st'y dwells., 15′ x 30′; A. M. Green, owner.

Marriott St. Nos. 420 and 422, 2 two-st'y dwells., 15′ x 28′; Samuel Elliott.

Mulberry St., e s, bet. Ward and Baker Sts., two-st'y dwell., 17′ x 44′; Jno. W. Elton, contractor.

Terrace St., w s, n Saville St., three-st'y dwell., 17′ x 32′; McIlwain & Cunningham, contractors.

Dobson's Mills, cor. Ridge Ave and Scott's Lane, three-st'y store-house, 40′ x 140′; J. Dobson, owner.

Queen Lane, s s, bet. Ridge Ave. and Railroad, 2 three-st'y dwells., 13′ x 24′; Jno. Dobson, owner.

Woodvale Ave., cor. Ridge Ave., 9 two-st'y dwells., 16′ x 44′; A. A. Harmer, owner.

Prospect Ave., near Ridge Ave., three-st'y dwell., 16′ x 42′; J. P. Scherf, owner.

Broad St., s e cor. Hamilton St., one-st'y foundry, and four-st'y machine-shop, 55′ x 109′ and 40′ x 55′; Kister & Oram, contractors.

Permits issued during May, 653.

Bids and Contracts.

BALTIMORE, MD.—The following bids for iron-work for the court-house and post-office were opened May 23: Haugh, Ketcham & Co., $6,578.31; Bartlett, Hayward & Co., $6,375; Vandenbeck, $6,954; Wendel Bollman, $5,852.50; Snead & Co., $7,05[illegible].96; Phœnix Iron Co., Trenton, $7,913.79; H. A. Ramsay & Co., $6,495; no awards.

CLEVELAND, O.—The contracts for building the Fourteenth Ward Fowler School Building have been awarded, and the foundations are already laid. Contractors are as follows: mason-work, F. H. Eggers, $29,850; carpenter-work, C. A. Merritt, $14,843; galvanized iron and tin, Parkin & Ryan, $1,443; slating, Auld & Conger, $1,470; painting, A. & W. Kyle, $1,107; heating and ventilating, Smith & Connors, $9,510.75. Total, $58,223.75.

PADUCAH, KY.—The following is a synopsis of bids for furnishing glass for post-office: De Paw, $899; E. A. Boyd, $1,008.18, to be completed in two weeks; Crystal Plate Glass Company, $1,067.37, to be completed in three weeks; John Gibson, $1,275; William Glenny, $1,390, to be completed in six weeks. No awards.

PHILADELPHIA, PA.—The following is a synopsis of bids opened for encaustic floor-tiling for court-house and post-office: Edw. Boote, $135.70; United States Encaustic Tile Company, $168.90; William L. Wilson, $102.92; American Encaustic Tile Co., $105; Sharpless & Watts, $113; John Gibson, $125. No awards.

TOPEKA, KAN.—The following is a synopsis of bids for heating-apparatus for the court-house, etc.: Samuel J. Pope & Co., $13,479; Bartlett, Hayward & Co., $15,48[illegible]; Brooks & Kemper, $15,700; Frederick Tudor, $16,667. The bid of Samuel J. Pope & Co., $13,479, the lowest, has been accepted.